

NOVEMBER 1922 - No 202

Monthly

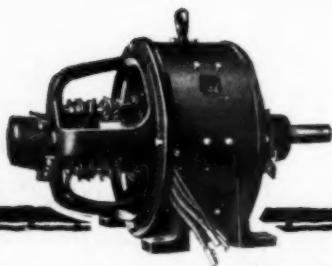
A Reference for Buyers

HITCHCOCK'S
**MACHINE
TOOL LIST**

Distributed Free to Machine Tool
Users Everywhere in the United States and to
Dealers in American Machinery Abroad

Published by
A. H. HITCHCOCK
1220-1235 Caxton Building
Chicago

FOR INDEXES SEE LAST PAGES



Some Engineers said,

"Your shafts are bigger than necessary"

In getting the advice of the 35 engineers who helped in the design of type T motors, some said, "Your shafts are bigger than necessary," but others said most emphatically, "You cannot make them too big."

The diameter of the shaft extension on Type T motors is the equal of any other similar motors and in most cases you will find the strength of the shaft is 20% to 40% greater than the average.

Every mechanical man will appreciate the importance of this and will be more fully impressed when he sees that this one feature is an indication of the extra precautions taken to make all vital parts of the motor to stand up under severe and unfavorable operating conditions.

Complete evidence of this will be found in Bulletin 2014

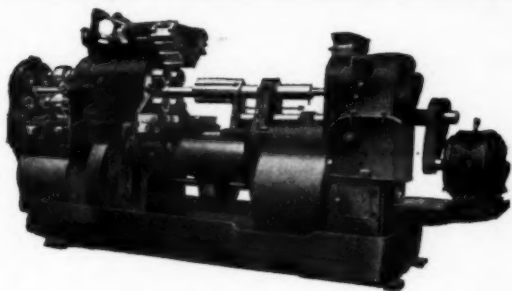
Reliance Electric & Engineering Co.

1050 Ivanhoe Road, Cleveland, Ohio

BRANCHES: BOSTON, NEW YORK, PHILADELPHIA,
PITTSBURGH, CINCINNATI, DETROIT, CHICAGO

We specialize in motors, sizes 1/2 to 200 h. p., constant and adjustable speed D. C.; squirrel cage and slip ring A. C.

Type **T** *Heavy Duty*
RELIANCE MOTORS
Direct Current



About prices—

When transportation is as cheap as it was in 1914, and wages are as low and working hours as long and taxes as moderate, then it may be possible for you to purchase good Automatics at 1914 price levels.

But will the time ever come?

Not "how cheap can I get the machine" but "how cheap can I turn out the work for which I buy the machine"—that's the basis on which you should consider

ACME AUTOMATIC

Multiple Spindle Screw Machines—up to 4"

THE NATIONAL ACME CO.

CLEVELAND, OHIO

NEW YORK BOSTON CHICAGO DETROIT BUFFALO WINDSOR, VT.

TO OUR CUSTOMERS

At present there is every indication that 1923 will be a big year for manufacturers. Also, that the sales will be on a quality-price basis.

We are sincerely interested in knowing whether your grinding machines are giving their greatest efficiency. The many improvements that have been brought out recently, and which you may not know about, may be the means of increasing your production and giving you better work.

Upon a request from you we will gladly send one of our engineers into your plant to look over the Heald equipment, and give unbiased advice whether you are getting the proper results or not.

Can we be of assistance to you?

THE HEALD MACHINE CO.

Manufacturers of Internal and Surface Grinding Machines

No. 6 NEW BOND STREET, WORCESTER, MASS.

\$

\$

GET
THE
Avey

WATCH
YOUR
OUTPUT
INCREASE

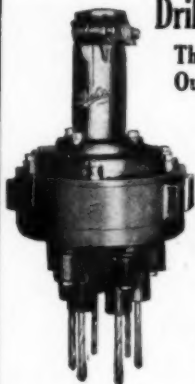


WATCH
YOUR
PROFIT
GROW

\$

\$

THE AVEY DRILLING
MACHINE CO.
CINCINNATI
OHIO



Drill Press Transformed

**The "Buhr" Makes a Multiple
Out of Your Single Spindle**

Set-ups can be made for circular, rectangular or staggered positions, and exact duplication of pattern is assured.

Buhr Drill Head is made with 3 to 12 adjustable or fixed spindles, and arms can be rotated or moved in and out. Saves time and money.

*Tell us what your work is and we'll
state what the "Buhr" can do for you*

Nelson-Blanck Mfg. Co.

DETROIT, MICH.

New York Office: 50 Church St.

Single and Multiple Spindle Drills

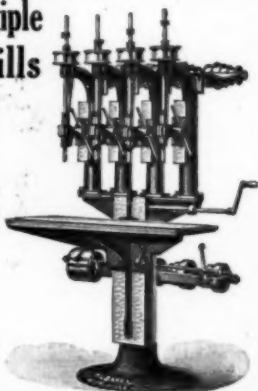
**1/2" & 3/4" Capacity
In Cast Iron**

Made accurately to do
production work at
capacity rating.

**Power feed if
you want it.**

Francis Reed Co.

43 Hammond St.,
WORCESTER, MASS.





Barnes Drills

8 to 50" Swing

State size you are interested in and we will gladly quote. This is our 20-inch Drill with wheel and lever feed. Can furnish self feed and back also.

We have made over 22,000 of this size drill—is very popular and there is a reason—it's the best 20-inch drill made for the money.

We make this Adjustable Arbor Press

In three sizes

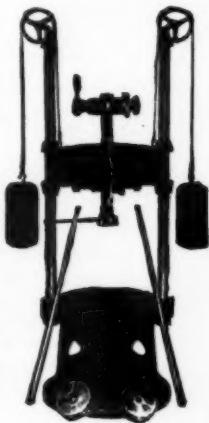
No. 1 size 12" x 24"—\$100.00

No. 2 size 20 x 36— 175.00

No. 3 size 30 x 36— 200.00

* Means 12 inches between side screws.

Frankly, this is not a cheap Arbor Press, but is strongly made and most convenient to operate—just a lot better than others.



W. F. and John Barnes Co.
123 Ruby St., Rockford, Ill.



**No. 1 Ten Inch Sensitive
Bench Drill Press**

It's a Burke

The most used
Bench Drill Press
in the world

The Reason:—

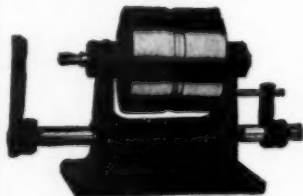
**Burke
Quality**

PRICES:

Without swing- ing arm.....	\$21
With swinging arm.....	\$24
Motor Driven	\$53 to \$60

THE BURKE

Tapping Machines
Friction Driven



**Eliminate all
shock to the
tap and save
95% of your
tap breakage**

The most efficient machines made for work within their capacity. They are complete in themselves, yet cost less than the average tapping attachment.

*Send us samples or drawings of your tapping
jobs and let us give you production estimate*

The Burke Machine Tool Co.
297 East 16th St., Conneaut, Ohio

Aurora Sliding Head Drills

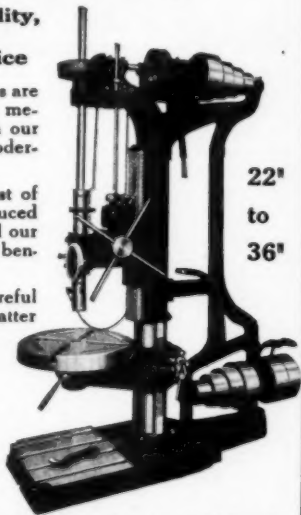
With Back Gear, Geared Feed
And Automatic Stop

**Highest Quality,
but sold at a
Moderate Price**

Our overhead costs are light, and skilled mechanics can live in our little city at a moderate figure.

Therefore, our cost of manufacture is reduced to a minimum, and our customers get the benefit.

We also invite careful comparison in the matter of *quality* — in rugged construction, wide range of adjustment, ease of manipulation, accuracy, heavy pulling power and rapid production.



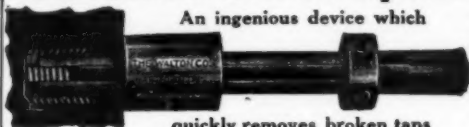
Large pulley diameters and the ratio of gearing used deliver the most power at the drilling point. The fool-proof table prevents inaccurate work when a careless operator forgets to clamp it. Enclosed positive gears, automatic release worm wheel and patented tapping attachment are other features. Belt or motor drive.

*You should know about them if you use drills
Better have the whole story; may we send it?*

THE AURORA TOOL WORKS
Aurora, Indiana, U. S. A.

Often you can get a **Walton Tap Extractor** **Without Expense**

An ingenious device which



quickly removes broken taps

It's like this:—

We send them on 60 days' approval. Many and many a time they pay for themselves, and more, before the trial period expires, in which case they are no expense at all. They quickly remove taps that are broken at or below the surface, saving costly time and the danger of spoiled work. Often pays for itself the first time used. Sizes No. 8 to 1 $\frac{1}{4}$ ".

Isn't it worth trying? If you think so, write to—

THE WALTON CO., Hartford, Conn.



**The Positive Elimination
Of Tap Breakage**

—is something we all have been looking for but have found it difficult to get until the advent of the "Woodstock."

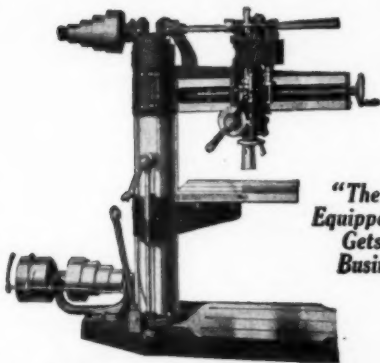
**The Woodstock Improved
No-Tap-Breakage Chuck**

—automatically releases tap the instant it binds or strikes bottom. Utilizes up to 95% of strenght of tap, with positive assurance it will not break. A small boy can adjust it. Saves time and money.

Write for details and trial offer

**Peter Bros. Mfg. Co., 115 Railroad St.,
ALCONQUIN, ILL.**

CANEDY-OTTO



***"The Well
Equipped Shop
Gets the
Business"***

C-O Radial Drills Cost Less— Earn More—Than Others

For economical, high quality production, Canedy-Otto Radial Drills are without equal. Their initial low cost, dependable operation and freedom from repairs make them the most profitable machines of this type ever built.

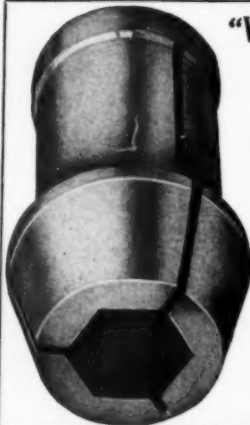
The C-O No. 101 Radial Drill illustrated is representative of the line, doing high grade, accurate work at lowest cost. Its features include power feed, automatic stop, four speeds and self-oiling countershaft.

Write for catalog. Address Dept. D.

CANEDY-OTTO MFG. CO.

*Manufacturers of Automotive Equipment, Drills, Punches, Shears,
Shrinkers, Countershafts, Grinders, Buffers, Forges,
Blowers, Tynere Irons and Blast Gates.*

**Main Office and Factory—Chicago Heights, Ill.
New York Branch—407 Broome St.**



"Watt" the "Sam Hill"

do we care what the other fellow says. We know that we can drill Square and Hexagon holes in the Lathe or Drill Press and have done so for five years. The Spring Collet as shown with Hexagon Hole, was drilled in the Lathe; time, four minutes by the "Watts Method," against one hour and twenty-five minutes the old way or slotter. Production, twenty-eight to one. Make us prove it.

Send for Catalog No. 5

Sole Manufacturers & Patentees

Watts Bros. Tool Works

Turtle Creek,

Pennsylvania, U. S. A.



Shows **Thor** drilling holes in cast iron frames. Also drills holes of various sizes up to $\frac{1}{2}$ " inc., in mfg., assembling, repair and maintenance work.

Thor

Portable Electric DRILL

Size UHB

**For Drilling Up To $\frac{1}{2}$ ",
Reaming and Wood
Boring**

***Be Right the First Time—
Use THOR Electrics***

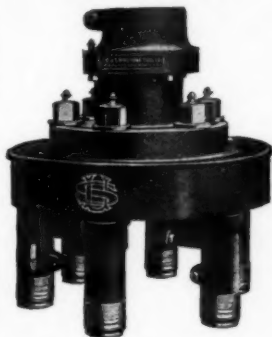
**Independent Pneumatic
Tool Company**

600 W. Jackson Blvd., CHICAGO

Offices and Agents Everywhere

Drill Several Holes At Once

On a Single Spindle Drill Press
At the Same Cost as Drilling One



With a
**U. S.
Multiple
Spindle
Drill
Head**

With
Adjustable
or Fixed
Spindles

Wherever several holes can be drilled at one operation, what a waste of time and money it is to drill only one at a time.

Our Adjustable Multiple Spindle Heads are regularly furnished with 2 to 6 spindles. Special Heads made to order. Their patented double adjustment of spindles permits drilling in any pattern—in squares, triangles, rectangles, ovals, straight line or staggered.

Fixed Multiple Spindle Heads of any practicable type made to order. Either our adjustable or fixed spindle heads drill with the same feeds and speeds you use for drilling a single hole.

*Here is a big economy with only a small initial outlay
Tell us what your work is, for close estimate of saving*

The United States Drill Head Co.
Cincinnati, Ohio, U. S. A.



REDFACE



PULLEYS

**SHEAVES and
FLY WHEELS**

Highest Quality

*Write for
CATALOG*

THE PYOTT FOUNDRY CO.

318 N. Sangamon St., Chicago, Ill.

**COOPER UNIVERSAL JOINTS
FLEXIBLE COUPLINGS**

"YOU CAN'T BREAK THEM OR WEAR THEM OUT"

Smooth; neat; only 5 simple parts; large oil space;
working surfaces case-hardened; no limit to size;
guaranteed stronger than shaft at any angle.

6 PATENTS



Three hundred years ago Hooke invented the Universal Joint with fixed centers. Three hundred years have elapsed and still the Hooke type of universal joints are burning up power and breaking in operation.

The Cooper Patented Universal Joint with no fixed centers is just as frictionless as the crosshead of an engine at any angle. *"You can't break them or wear them out"* with shafts joints are bored for. Perfect lubrication at any speed.

Sizes $\frac{1}{4}$ " to 2" in stock bored to fit YOUR shafts.

Send for one and try it out

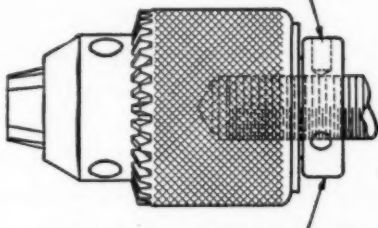
Cooper Flexible Transmission Co., Inc.

1723 8th Ave., Brooklyn, N. Y.

ADAPTERS

For Fitting Jacobs Chucks To Breast Drills

Hole to fit handle on key.



The adapter is simply a lock-nut threaded to fit the spindle.

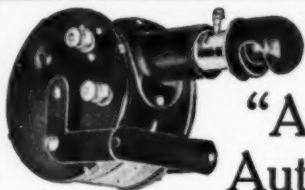
These adapters have been designed to meet the demand of users of breast drills for a drill chuck of the Jacobs Quality that will securely and accurately hold drills and can be operated with the ease for which this chuck is famous. Secure maximum efficiency from your breast drills by fitting a Jacobs Chuck to the spindle.

CHUCKS AND ADAPTERS ARE FURNISHED IN THE FOLLOWING SIZES:

CAPACITY	CHUCK MODEL	THREADED
0- $\frac{3}{4}$	No. 2B	7-16x22 V thread
		9-16x24 V thread
0- $\frac{1}{2}$	No. 6B	9-16x24 V thread
		5-8x24 V thread
		7-16x22 V thread

Write for Descriptive Circular H-18

The Jacobs Manufacturing Co.
2074 Park Road, Hartford, Conn.



Equip your
car with an
"Autex"
Auto Reel

A perfect-working Extension Reel that is readily and easily mounted on any make of Automobile. Can be used on dash, under hood, or other places. Light taken to any part of car. Cord rewinds on Reel automatically.

Price \$6.00 prepaid

The Cincinnati Specialty Mfg. Co., Inc.

1913-21 Powers St., Cincinnati, Ohio

Weigel
Single-Wheel
"Kwality Kaster"

Will not crush or break. Swivels on steel machined rollers. The best single caster on the market.

Double-Wheel
"Trukaster"

Lasts three times as long as others. Easiest running, strongest, and most durable double-wheel caster made. Has heavy plates and axes.

Write for Price List

**THE HAMILTON
CASTER & MFG. CO.
HAMILTON, OHIO**



R-S Tap is a BIG Producer



New Collapsible Tap Designed by Experts and Used by Practical Men

The R-S tap is *positive* in action, therefore it *will always collapse* at the desired point without dependence upon any kind of spring action.

All wearing surfaces of the tap are hardened and ground, insuring

an accurate and long-lived tool. The vital parts are fully protected, and are *chip proof*. Capacity 1" and up.

Adjustments can be made very close, as a movement of the knurled ring one full graduation varies diameter of cutting points one-half of 1-1000th of an inch. All in all, it is a most worthy companion tool of the now famous R-S (Boehm) Automatic Die Head.

Write for full description of this production booster. Its use reduces shop costs everywhere—why not yours

Rickert-Shafer Co., 1110 Cherry St., Erie, Pa.

Steel Bearing Balls

Brass
and
Bronze
Balls



Steel
Burnishing
Balls

Ask for Price List 23-H

The Abbott Ball Company

Elmwood District, Hartford, Conn.

Speed — Uniformity — Finish In Riveting



Speed:—One rivet per second.

Uniformity:—Each rivet headed with same degree of tightness or looseness as desired.

Finish:—Perfectly formed, highly polished heads—no hammer or tool marks.

Grant Noiseless

Rotary Rivet Spinners are the only machines built which will accomplish the above, and they may be *operated by cheap help.*

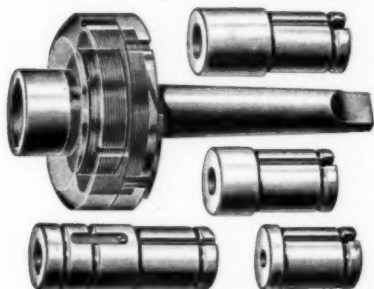
Ask for Catalog, showing several styles

Also send samples of work for riveting

The Grant Mfg. & Machine Co.
C. E. Station, Bridgeport, Conn.

Why have your taps break?

Save them by using "SAFETIES"



Efficient — Simple — Economical

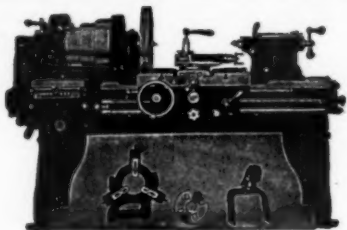
SAFETIES DO AWAY with the annoyance and expense of broken taps, and damaged and delayed work. They save you time, labor, temper and money. A small investment in "Safeties" brings big returns.

"SAFETIES" enable your operators to tap at full speed to bottom of hole without danger of breaking anything, as tap driver stops instantly under any undue torsion. All "lost motion" is eliminated because you can change from drill to tap or tap to drill, without stopping spindles.

"SAFETIES" are regularly made in five sizes, to drive taps up to 2½" diameter inclusive.

Seeing is believing—try one out on your toughest tapping job—be convinced—and profit accordingly

The Beaman & Smith Co.
Providence, Rhode Island



The 18" Heavy Duty Quick Change Gear MUELLER Engine Lathe is a marvel for rigidity, ease of control, and durability. It is the kind of Lathe you need in your shop to meet present day competition.

Let us tell you all about it

The Mueller Machine Tool Company

Radial Drills and Lathes

ESTABLISHED 1902

CINCINNATI, O.

Shapers, Lathes and Millers



Moderate prices with highest grade materials and workmanship.

Steptoe Shapers, Millers and Lathes should be your first consideration in equipping your machine shop.



14"x6' — \$400.00

16"x6' — 450.00

With Quick Change Gear Box \$85.00 extra

Send for complete Catalogue

THE JOHN STEPTOE COMPANY

2951 Colerain Ave.,

CINCINNATI, OHIO

Pedrick Lathe Boring Bars



There are many times when you could profitably use one of your lathes for boring—if you only had the proper appliances at hand.

We can equip you for such work with one of our Lathe Boring Bars. They are made in diameters from 2½" to 6" and various lengths, with a large assortment of cutterheads to meet miscellaneous requirements.

The lathe provides the power, and each bar has a two-change constant feed, hand-controlled or automatic. The bar is rigidly held and is easily taken down and reset without changing the alignment.

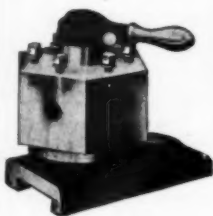
Put your boring problems up to us. We have all kinds of new boring machines, from our Standard Portable Cylinder Boring Bar to our new Floor Boring Machines.

Pedrick Tool & Machine Co.

3644 N. Lawrence St., Philadelphia, Pa.

**Builders of Portable Cylinder Boring Bars, Crank Pin Turners,
Portable Millers, Pipe Benders, etc.**

Help Yourself—



Your Product

can be manufactured cheaper by an F. & S. Turret.

Install one of these attachments on your Lathe and note the increase in production.

FAY & SCOTT, DEXTER, ME.

PRYIBIL



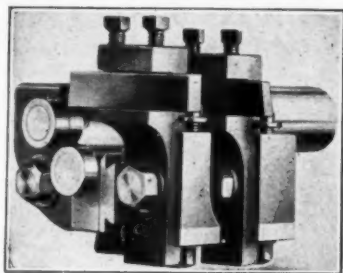
Manufacturers and
dealers of machine
tools, lathes and
wood working
machinery.

Catalogues and prices on request

ESTABLISHED 1859

**P. PRYIBIL MACHINE CO.
INCORPORATED**

512-524 West 41st Street, New York, N. Y.



BIGGS—Model C

All Steel Tangent Cut Box Tools

Improved Design, Easy to Adjust

Made to fit all sizes and types of hand and automatic screw machines.

The Tangent Cut gives correct clearance and will maintain accuracy under the heaviest cuts.

Increase your production by using our Models C or D.

They are SUPER-PRODUCTION TOOLS

Send for circular

P. H. BIGGS

1235 W. 9th St., CLEVELAND, OHIO

ARMSTRONG

GANG PLANER TOOL



For Planing Large Surfaces

It pays for itself in a few hours' work. In planing large castings it saves 50 to 75 per cent of the time required with a single-point tool—a most pleasing economy.

Write for Catalog of over 100 shapes and sizes of Lathe and Planer Tools; also separate Catalogs of Armstrong Ratchet Drills, Wrenches, and Dogs and Clamps.

Armstrong Bros. Tool Co.

"THE TOOL HOLDER PEOPLE"

308 N. Francisco Ave., Chicago

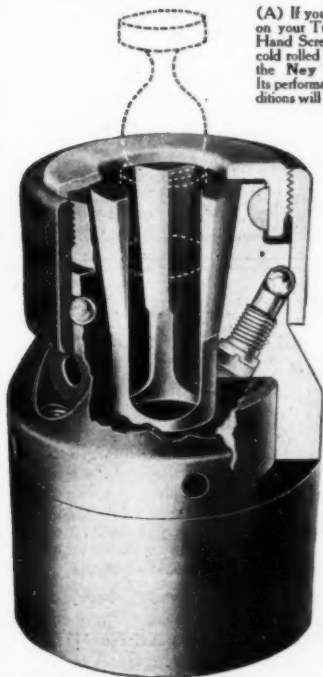


PUT THIS ON YOUR LATHES

CUT THREADS THE QUICK AND E-Z WAY

You'll get better results with

THE NEY 'Positive Grip' CHUCK



(A) If you want the most efficient results on your Turret Lathe, Engine Lathe or Hand Screw Machine with either hot or cold rolled bar steel it will pay you to try the Ney "Positive Grip" Chuck. Its performance under the most trying conditions will surprise you. **Ney Positive**

Grip Chucks are rigid, powerful and compact, and can be used as a three jawed chuck or a precision collet chuck. They never slip.

With Six Interchangeable Collets

in the following sizes—

$\frac{3}{8}$ inch	$\frac{3}{4}$ inch
$\frac{1}{2}$ inch	$\frac{7}{8}$ inch
$\frac{5}{8}$ inch	1 inch

Each collet may be used on stock $\frac{1}{32}$ " under to $\frac{1}{32}$ " over normal size of collet, giving a range of $\frac{1}{16}$ ".

Our descriptive circular gives complete details on Ney Positive Grip Chucks.

May we send it?

**THE J. M. NEY CO., HARTFORD,
CONNECTICUT**



Quick Change

In the simplicity of the
Jarvis Collets

and a

Quick Change Chuck

lies much of their value. Until in actual use, one can scarcely estimate their worth.

Inexpensive, too!

Collets, holding various tools, quickly changed by one hand. Let us mail you the Catalogue of the entire line of JARVIS APPLIANCES. If you have an eye to economy, they will interest you.

The Geometric Tool Company

New Haven, Conn.

Barker Wrenchless Chuck

**Speed of an Air Chuck
At Far Less Cost**

With special advantages
that are all its own.



More simple and effective than an air chuck, without its cost for installation and maintenance. Work is centered automatically and chucked with one movement of lever. It holds delicate work as lightly as desired and the more substantial work with an unshakeable grip, governed entirely by the lever pressure, which a child could operate. Made with two or three jaws for all work on lathes, turrets and semi-automatics.

Write for description of this economy chuck

Thomas Elevator Company

CHUCK DIVISION

31 S. Hoyne Ave.,

Chicago, U. S. A.



Don't Overlook

The Rhodes Shaper

when giving consideration to
new tool room equipment.

Accurately built.

Easy to operate.

Low initial cost.

**STROKE 7"—All that is re-
quired for the average shaping
operation.**

Ask your dealer or write for
CATALOGUE H22

The Rhodes Mfg. Company

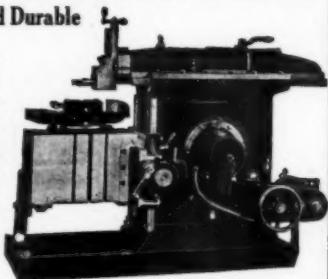
984 Park Road, - Hartford, Conn.

SHAPERS—RHODES—SLOTTERS

COLUMBIA SHAPERS

Accurate and Durable

Liberal size of all parts, symmetrical proportions, convenient operating arrangement, and strictly first-class workmanship and materials, combine to make Columbia the *highest type of shaper*.



It pays to use them

16', 20', 24', 28', 32'
Cone, Single Pulley or Motor Drive

The Columbia Machine Tool Company
Hamilton, Ohio

HOLLINGWORTH SHAPERS

Made in sizes 12', 14', 16', 20', 24', 28' and 30', with table supports on all machines.

Made for the heaviest classes of work, with reserve power. Take heaviest cuts with high speed tools.

Inside others in price.

Literature?

The Only Complete Line Of
Back Geared Crank Shapers



Hollingworth Machine Tool Co.
2nd & Greenup Sts., Covington, Ky.

"OHIO" SHAPERS

Accuracy

Power

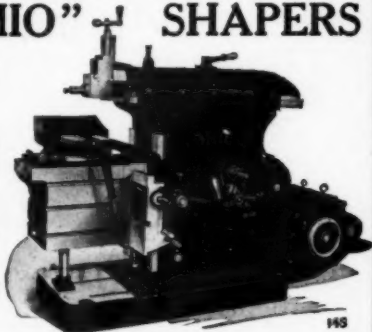
Long Life

Plus

"OHIO"

QUALITY

All the way
through



145

The Ohio Machine Tool Co.

Established 1887

817 So. Leighton St.,

KENTON, OHIO

SHAPERS

12", 14", 16"

Plain Crank,

16", 20", 25"

B. G. Crank,

either Cone

Driven or

through

Speed Box.

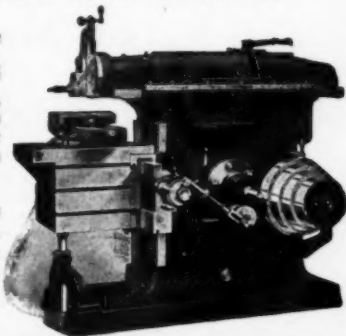
28" and 32"

Back Gear-

ed Crank,

Single Pul-

ley Drive.



The Smith & Mills Co.

Station B.,
Cincinnati, O., U.S.A.

Wear-Ever Adjustable Spacing Collars



PATENTED

Save milling machine set-up time.

Eliminate paper shims and thin steel washers.

Positive adjustments on accurately ground surfaces.

Made with adjustments 1/1000 inch or more.

Stock collars $\frac{3}{4}$ " to $2\frac{1}{2}$ " bore with adjustments of 2/1000 inch
are SENT ON APPROVAL.

SCULLY-JONES & COMPANY, 2012 W. 13th Street
CHICAGO, ILLINOIS

No. 1 U. S. Improved

Hand and
Weight Feed

Milling Machine

—and—

14" U. S. Sensitive Floor Drill

are two moderate-priced tools with which you can do a tremendous amount of work. The Miller has more power than any similar machine of its weight, and is extremely efficient and economical in operation. The Drill is unexcelled on holes $\frac{1}{2}$ " and smaller.

Description and money-saving prices upon request

The United States Machine Tool Co.
Cincinnati, Ohio

"Whitney" Hand Miller

THOUSANDS IN USE



Specially handy for the TOOL ROOM. A wide variety of cuts can be quickly set up and completed without any sacrifice of the accuracy so essential in Tool Room work.

Prompt Deliveries

But they are going fast. Don't wait! Send your order in at once.

The Whitney Mfg. Co., - Hartford, Conn.

Chains—Keys—Hand Milling Machines

Burke Bench Millers

**FOR
Accuracy
Convenience
Economy**

On small milling operations, where accuracy as well as production must be had, are the places to use Burke Bench Milling Machines.

Built in various sizes, both hand and power feed, and at prices ranging from \$100 to \$220.

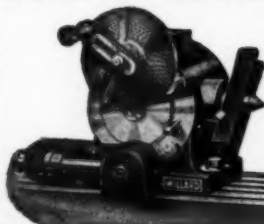


\$220.

BURKE No. 4

**The Burke Machine Tool Co., 297 E. 16th St.
Conneaut, Ohio**

Built for Exacting Service



**The WILLARD
10' Universal
Dividing Head**

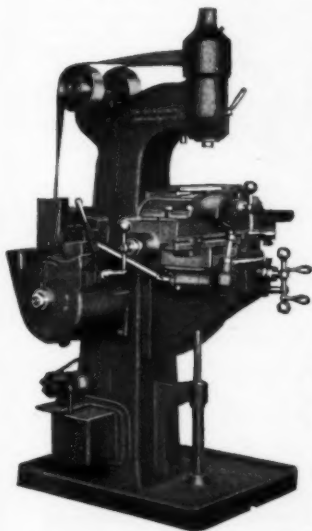
Divides any job on a milling machine. The graduated swivel head adjustable at any angle between 10 degrees below horizontal to 10 degrees beyond vertical. Clamping device is especially rigid. Spindle has No. 10 B. & S. taper and is made of the highest grade steel, hardened and ground. Head and tailstock centers made of best tool steel. Complete index plate. All parts interchangeable. Made right or left hand. *We will gladly mail you full details on request.*

**The Willard - Middletown Machine Co.
Middletown, Ohio**

The Taylor & Fenn

Vertical Milling Machine

With Circular Milling Attachment



The Circular Milling Attachment, when used with our Vertical Milling Machine, affords great possibilities for continuous milling operations, for milling segments of circles, circular slots, and all varieties of circular or longitudinal milling on plain or irregular shaped pieces within its capacity.

The Attachment may be operated by either hand or power feed, and as it is driven from the main table driving shaft of the machine proper, both the power table feed and the power circular feed may be used simultaneously, which is of great advantage in certain classes of work.

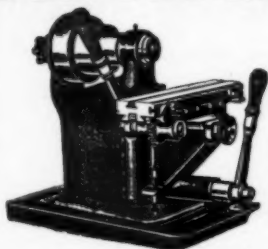
SPECIFICATIONS

Working surface of table, (dia.).....	10½"
Maximum distance spindle to table,.....	9"
Height of circular table.....	4"
Width of T slots,.....	½"

You'll be interested in complete description; may we send it?

The Taylor & Fenn Company
Hartford, Conn., U. S. A.

Just The Machine



for those light cuts on details for Fire-arms, Sewing Machines, Typewriters, Bicycles, Electrical work, and a thousand and one other details used in the manufacture of the various products of the manufacturing world.

Send for descriptive circular

THE CARTER & HAKES MACHINE CO., West Winsted, Conn., U. S. A.

NEW ENGLAND AGENTS—Hill, Clarke & Co., Boston
NEW YORK AGENTS—Hardinge Sales Co., Grand Central Palace
WESTERN AGENTS—Marshall & Huschart Machinery Co., Chicago, St. Louis, Indianapolis.

A TRIAL ORDER will convince you that our Hollow Bored Forgings And Steel Shafts

Are RIGHT in both QUALITY and PRICE

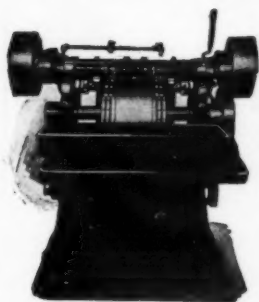


IF YOU MAKE MACHINES on which you use such items as Lathe Spindles, Piston Rods, Rams, Clutch Shafts, etc., we can serve you to our mutual advantage.

Send along your blueprints with a trial order; we'll both be pleased

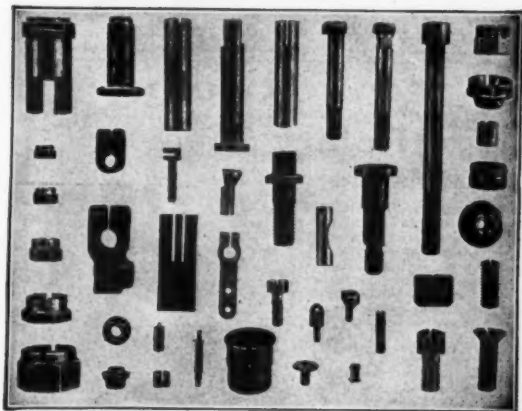
American Hollow Boring Co.
Erie, Penna.

Continuous Milling



The Craftsman Continuous Rotary Miller mills four rows of work simultaneously. Production costs are slaughtered by this machine. Our repeat orders are our best testimonial. Let us study your milling problems.

Below are shown some of the parts Craftsman Millers are milling.



Our story is short. Let us tell it to you.

THE CRAFTSMAN TOOL CO.
CONNEAUT, OHIO

The Only Difference

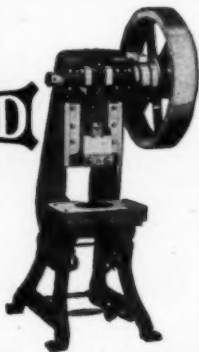
is not just price. The big thing is **service**. An investigation of the merits of

HIGH DUTY **ROCKFORD** PUNCH PRESSES

will give you a new idea of what you should get in punch press service. Definite, dependable reliability under all working conditions.

Write today for complete construction details.

Rockford Iron Works
ROCKFORD, ILL.



"QUICKWORK"

Registered in U.S.A. and Foreign Countries

Rotary Shears

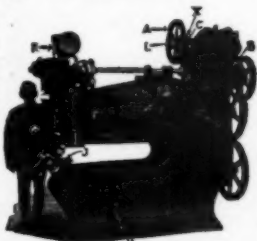
Made in 7 Sizes

Cut all gauges of sheet and plate metal up to 1 inch thick in straight or irregular shapes and openings without cutting in from side of sheet. Leaves square, true edge that requires no finishing. Used in building ships, boilers, tanks, cars & general plate and sheet metal work.

Save 50 to 90%

Eliminates Oxyacetylene cutting and plate planing

Write for catalogue No. 60



Patented June 3, 1913; Aug. 26, 1921.

THE QUICKWORK COMPANY, St. Marys, Ohio, U. S. A.

Cable Address "Quickwork." Codes: W. U., General, Bentley's, Lehigh's, ABC 5th Edition

Every Shop Needs A Hack Saw



Marvel Draw-Cut Hack Saw No. 2

With Swivel Vise that Swivels Both Ways

The No. 2 is a general work saw in use all over this and foreign countries. **THE PRICE IS LOW.** We make a smaller size still lower in price. And we make high speed saws, metal band saws, punches, shears, drill press vises.

INVESTIGATE THEM NOW
*by sending for our catalogue
that gives all the details*

Armstrong-Blum Mfg. Co.
341 N. Francisco Ave., CHICAGO, ILL.

Peter's Abrasive Metal Saw

Cuts Thru Anything—Quickly

It has no equal for cutting high speed and other hardened steels, copper and brass tubing, aluminum, broken reamers, taps, drills, forming tools, etc. Makes a rapid, thin, clean cut. Doesn't draw the temper. Saves time and material. Soon saves its cost and lasts a lifetime.

8" Size \$22.50, with C. S.

Splendid for tool room. Cuts high-speed steel up to 1" square.

12" Size \$60, with C. S.

Cuts up to 2 1/2" diameter, round or square, at any angle up to 45 degrees. Ball bearing.

15 Days' Free Trial

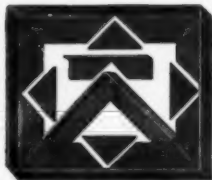
Write us or ask your dealer

PETER BROTHERS MFG. CO.
115 Railroad St., Algonquin, Ill.



THE LITTLE BLACKSMITH

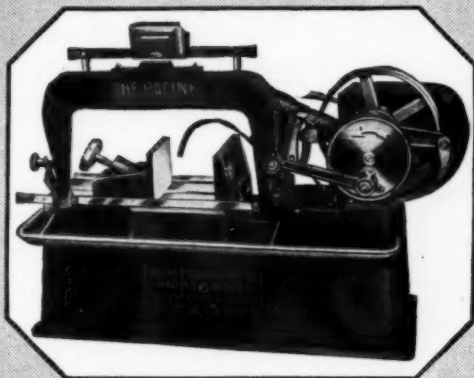
**Hand
Power
Angle
Shear
AND
Notch-
ers**



WRITE for BOOKLET

**J. F. KIDDER MFG.
COMPANY**

BURLINGTON, VERMONT



"RACINE" High Speed METAL CUTTING MACHINES

The chips made by any **"Racine" High Speed Metal Cutting Machine** are all deposited at the end of the cutting stroke, indicating a **positive** lift on the non-cutting stroke. This means cleaner and truer cutting, low saw blade consumption and a real saving in time because the blade clears itself of chips, which, of course, means quicker cutting.

*Get all the facts about the "Racine" line.
Write for Catalog H.*

Racine Tool & Machine Co.
RACINE, WIS., U. S. A.

Use "Racine" H. S. Tungsten Power and
Soft Center Hand Blades

Mechanical Lift-Positive Draw Cut

Our New No. 7 Roller Bearing Punch

Something Better—A Real Bargain



Capacity, $\frac{1}{4}$ " thru $\frac{1}{2}$ "; $1\frac{1}{4}$ " throat and $\frac{1}{2}$ " gap; length, 18"; punches to center of $3\frac{1}{2}$ "; weight, $6\frac{1}{2}$ lbs. Furnished with 5/32, 7/32 and 9/32 punches and dies. Our old No. 7 was good, but this is far superior and works 40% easier, yet sells at the same price.

Shall we mail you one—or the literature?

Whitney Metal Tool Co.

95 Forbes Street,

Rockford, Ill.

Nicholson Expanding Mandrels



ONE SET of *only nine* fits any hole from $\frac{1}{2}$ " to 7", round or square. They fit it in a moment, without calipering or guesswork. Figure the saving in time, labor and storage space. Wonderfully handy and economical in every way.

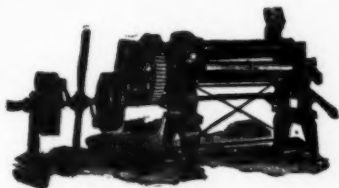
Nicholson Arbor Presses

Reduce by half the time required for pressing out arbors, punching, bending, broaching and similar work. There's a size to meet your needs.

Write for booklet and 30-day trial offer on either or both of these devices

W. H. Nicholson & Co.

117 Oregon St., Wilkes-Barre, Pa.



BELOIT

INITIAL TYPE

Sheet & Plate Bending Rolls

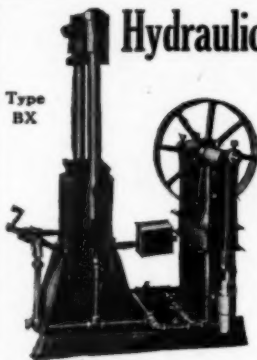
The Beloit Initial, or side bending, type roll has been designed to meet the demand for a strong, efficient, quick acting roll for use where the heavier Pyramid Type is not required. It is especially adaptable for use in shops handling sheet metal and for the lighter class of work in Boiler Shops, such as stacks, breeching small tanks, and the like.

The upper roll is geared to the adjustable lower roll thus pinching the plate, while the idle roll, which is also adjustable, does the bending. The outer housing is hinged and the upper roll is raised by throwing a cam lever, thus permitting the removal of sheets bent to a full circle. All styles of these rolls are double back geared and require a minimum amount of power.

Built in twenty-six sizes with capacities up to 5/16" and from 14" to 98" between housings.

HENDLEY & WHITEMORE CO.
100 S. State St., **BELOIT, WIS.**

Type
BX



Hydraulic Power Press

Made in 10 to 75 tons capacities—12, 18, 24 and 30² between parts.

This press with *Automatic Valve* will make 60 short strokes per minute. It can be set quickly to make any length of ram stroke from 1² to 10² or more.

It can be used for forming bakelite—for drawing metal, punching, riveting and many other purposes.

*Write for
information*

Lourie Mfg. Co.,

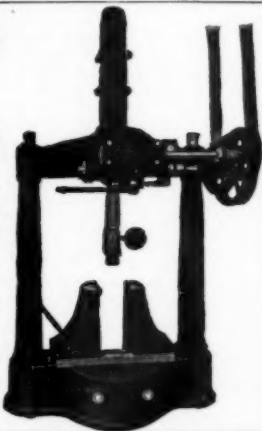
Springfield, Ill.

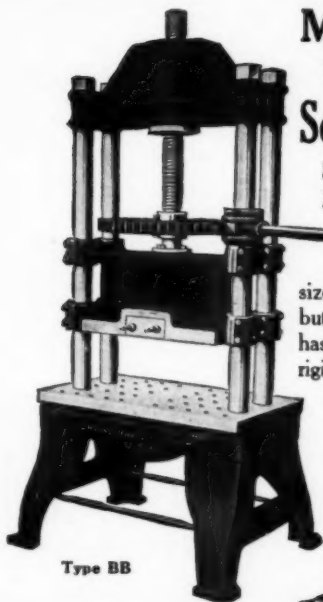
ATLAS 30 Ton Power Press

will give you
greatest possible
efficiency on your
production work.

*ATLAS Presses are built
in all sizes and types.*

Atlas Press Co.
Kalamazoo, Mich., U.S.A.





Type BB

Manhattan

1-Man, 4-Post

Screw Press

80-Ton Pressure
20" x 36" Table

We make three smaller sizes with two posts, but this new four-poster has greater strength and rigidity than any other machine of its type. Ideal for heavy work. They all save hours of time in the accurate fitting of dies.

Manhattan Grinder

Compact, massive, noiseless. Oversize phosphor bronze bearings. No chatter under heaviest work. A revelation in quiet efficiency.

Particulars and prices ?

**MANHATTAN MACHINE
AND TOOL WORKS**

Dept. A

GRAND RAPIDS,

MICHIGAN

43





T. H. Lewthwaite Rugged Punches

Stand Up Longer

With an experience of over 30 years, we build *efficiency* into every punch. All T. H. L. Punches are accurate, rugged and dependable. They are tempered individually and *tempered right*.



Large stocks. Quick deliveries. Special sizes quickly made.

*How about trying them out?
You'll be glad you did*

T. H. Lewthwaite Machine Co.
417 East 31st St., (Est. 1890) New York City



Belt Driven

DUPONT Power Hammers

Belt or Motor Drive

For general forging and tool dressing.

They embody a design and workmanship that are unsurpassed.

Send for Bulletin

United Hammer Co.
45 Bromfield St., Boston, Mass

B. & Ks.,—Equally Good for Big Runs and Any Odd Job of Pipe Threading



(No. 4 P. D. Q. C. Improved. Belt Drive. Cap. 1" to 4". All Gears are Covered.)

Do Not Hesitate—

to put your pipe threading problem up to us. Solving such problems has been our meat and drink for over 35 years, and if we can serve you the pleasure will be ours, while the **profit** certainly will be mostly yours.

B. & Ks. are built in 17 styles and sizes, and they're the embodiment of speed, convenience and dependable accuracy. You can make instant adjustment to the 1000th of an inch without the use of tools. And there are other features which help to boost production and push down costs.

*Writing us about your needs does not obligate
you in any way. Let's hear from you*

Bignall & Keeler Machine Works Edwardsville, Illinois

Sales Agents: Manning, Maxwell & Moore, New York, N. Y.
Chicago Philadelphia Boston St. Louis Pittsburgh Cleveland New Haven
Cincinnati Buffalo Syracuse Detroit Milwaukee San Francisco Seattle

A Strong Portable Key-Way Cutter

This handy little tool is easily taken right to the job where it cuts key-ways of just exactly the right dimensions. It does the work quickly,

accurately and at minimum cost, saving labor and money. Just clamp the tool to the shaft and turn the crank.



New Style "B"

Style "B" has six milling cutters and cuts keyways from $\frac{1}{4}$ " to 2" wide, in shafting 2" to 8" in diam. and 12" long without resetting.

THE BUCHER-SMITH CO.
East Liverpool, Ohio

THE BEST

There is a Best of Everything

And in this case this

KEYSEATER

MILLS the BEST KEYSEATS

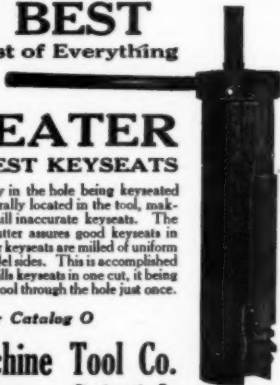
THE miller fits exactly in the hole being keyseated and the cutter is centrally located in the tool, making it impossible to mill inaccurate keyseats. The guide following up the cutter assures good keyseats in alignment. With this miller keyseats are milled of uniform width and depth and parallel sides. This is accomplished by a rotary cutter which mills keyseats in one cut, it being only necessary to pass the tool through the hole just once.

* Write for Catalog O

National Machine Tool Co.

2268 Spring Grove Ave.,

Cincinnati, O.



The CATLIN—Simplest Keyseater in the World

**Faster Keyseating
Cheaper Keyseating
Accurate Keyseating
Simplest Operation
Greatest Durability**

**Has less than half
the number of parts
of other keyseaters.**

**Either direct - con-
nected motor or belt
drive.**

**A size for every
class of work.**



So simple in construction, so rapid in operation, and withal so durably built, that the Catlin is easily the most efficient and economical Keyseater made today.

The picture shows the No. 1 Catlin, belt driven, with three-step cone pulley. Our other sizes, for belt or motor drive, cover practically every modern keyseating requirement.

We invite your inquiry. Glad to mail you a partial list of big plants now using CATLINS

Chattanooga Machinery Company
Chattanooga, Tenn.

Balancing Ways

"Anderson Improved"—Always Ready



Made in five sizes for balancing anything that turns on a shaft, up to 10,000 lbs.—pulleys, gin brushes, turbine rotors, crank shafts, polishing wheels, fly wheels, etc.; also for testing straightness of shafts, crank shafts, etc. No centers required; no leveling. Always ready and accurate; very sensitive.

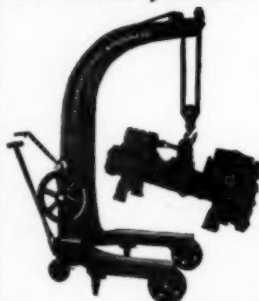
"Swing"	20"	40"	60"	72"	96"
Greatest distance between standards.....	20"	30"	30"	66"	88"
Capacity in lbs.	1000	2000	2000	5000	10000
Approx. shipping weight	45	90	150	350	650
Code	Bend	Bid	Bis	Bib	Ben

Any of above can be furnished with longer shafts

Anderson Bros. Mfg. Co.

1915 Kishwaukee St., Rockford, Ill.

A Crane, Hoist and Truck—



The "CanTon"

is admittedly "The Handiest Tool in the Shop." In handling weights up to 6,000 lbs. the "CanTon"

**Does the Work
of 6 to 10 Men**

It's a splendid auxiliary to the overhead system in large shops, and indispensable in smaller ones. Takes the load anywhere at a big saving in labor.

*Many sizes. Write
today for Booklet E-8*

Canton Foundry and Machine Co.

Canton, Ohio

New York Office: 45 West 18th Street, Second Floor



**"Better equipment
saves money—"**

*That's why you
should install the*

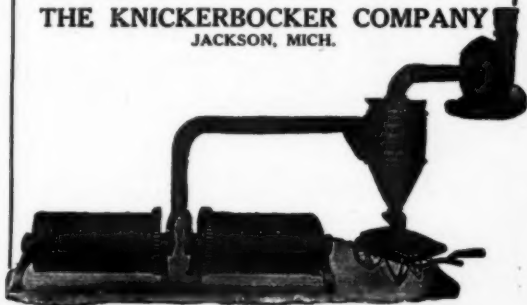
"Rarefied" Dust Collector

- successful with all kinds of dust.
- often saves 40% in power.
- operated on partial vacuum principle.
- repair costs are negligible.
- successful in some of the biggest plants in the country. One is using twenty-six.

*List of big users—our explanatory booklet—
an estimate by our experienced engineers—
all gladly furnished on request. And it
places you under no obligation whatever.*

WHAT SAY?

THE KNICKERBOCKER COMPANY
JACKSON, MICH.





Style "A"



The Hinge



Style "U"



Style "B"



Style "G"



Style "O"



Style "L"



Style "T"

GITS OIL CUPS

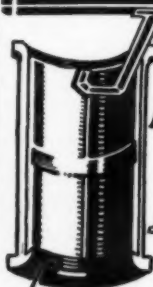
Give perfect satisfaction where others fail. State style and size in which you are interested, and we will send free samples and catalog.

GITS BROS. MFG. CO

1940 SO. KILBOURN AVE., CHICAGO



Style "H"



JOHNSON

*Babbit Lined Bearings
And Bronze*
BUSHINGS



for Products Of Super-Quality

JOHNSON BRONZE COMPANY

NEW CASTLE PA.

A Contribution to Mechanics

MAGAZINE-FEED Screw Driving is a distinct contribution to mechanics.

The screw driving on many a manufactured article is a considerable factor in assembling or putting together the various pieces, which is one of the big items in labor cost. Anything which materially reduces that cost is an economic gain of no mean importance.

Progressive manufacturers everywhere are using from one to thirty Magazine-Feed Screw Driving Machines, with which they are reducing by 65 per cent and upwards the cost of driving either wood or machine screws. If you drive screws in quantity and are not yet using them, it is because we have failed in some way to impress upon you the perfection, convenience and great economy of Magazine-Feed Screw Driving.

That is what we want to tell you about. We want to tell you the facts, and facts only, backed by testimonials which tell their own story of accomplishment. And if you will give us the dimensions over all of your work, with the gauge and length of screws you are driving, we can make definite suggestions which we believe will appeal to your best judgment. Let us hear from you.

The Reynolds Machine Company
Dept. H. H.,Massillon, Ohio

New Hisey SUPER

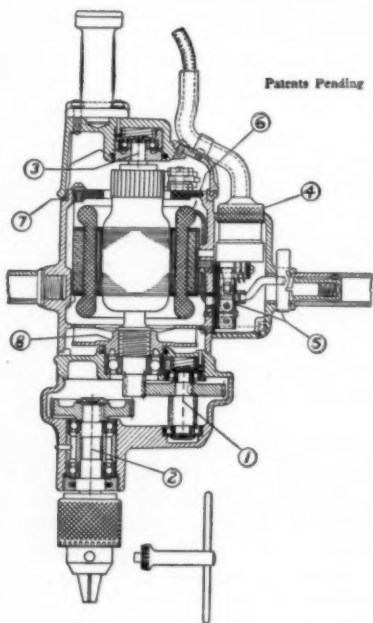
Are more

POWER than
the New Hisey

CURRENT
capacity.

MOTOR of
dangerously high
life of machine)

MECHANICAL
into the construction



1. Ball Bearing

2. Ball Bearing

3. Ball Bearing

4. Quick Change

5. Famous Hisey

Exhaustive
time to do more

A close tab
drills, has proved
is less than other

Exclusive H

For maximum
Drill, and becom

THE HISEY-WOLF MACHINE

AGENTS IN ALL COUNTRIES

HISEY Universal Drills

are more efficient from all angles

POWER necessary to do the work. There is an abundance of this in new Hisey Super Drill, and some to spare.

CURRENT CONSUMPTION is lower than any drill of same rated capacity.

MOTOR of our own design, is cool running. Does not operate at excessively high speed (a feature which reduces wear and adds to the life of machine) and is equipped with a practical commutator of liberal size.

MECHANICAL DESIGN determines the life of any machine. Look at the construction of this new Hisey Super Drill.

- | | |
|---------------------------------|--|
| 1. Ball Bearing Gear Spindle | 6. Adjustable brush holder yoke |
| 2. Ball Bearing Chuck Spindle | 7. Improved vent openings, safeguard the motor and interior parts against accidental and willful abuse |
| 3. Ball Bearing Motor Shaft | |
| 4. Quick Cable Connector | 8. Improved ventilating fan |
| 5. Famous Hisey Patented Switch | |

Exhaustive tests have proven that Hisey Drills *will do* and *will continue to do* more work at lower operating cost than any other machine.

A close tabulation by prominent manufacturer using several hundred machines has proven that the maintenance (cost of up-keep) of HISEY Drills is less than other machines.

Exclusive Hisey features produce these facts.

For maximum production with uninterrupted service, insist on a Hisey and be convinced.

MACHINE CO., Cincinnati, Ohio
IN ALL PRINCIPAL CITIES

Style D.



Opened.

Your Power Plant

may be the acme of perfection. How about the mechanism that it drives? Every oil hole leading to a bearing that is protected from dust and grit by

Tucker Oil Hole Covers

aids and conserves power, lubricants, repair bills and adds efficiency to your product.

Style G.



Opened.

Style A.



Style B.



Style C.



Style D.



Style E.



Style F.



Style G.



W. C. & F. C. TUCKER, Hartford, Conn., U.S.A.

FOREIGN AGENTS: Fenwick Freres & Co., Paris, France
Alfred Herbert, Ltd., Yokohama, Japan

You Advance the Price

**In a few months' time the Curtis
will have returned its cost to you**



No. 400—Capacity: 2 Bushels

It is pure economy to buy a Curtis. Extracting the oil from your chips and shavings will save many barrels in the course of a year, and reduce your oil bills to that extent. It is a sturdy, ball-bearing machine that requires but little attention or power. Three sizes.

*Be up-to-date in all your departments.
Send for details of
this economizer today.*

Albert B. Curtis Estate

Box 44

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Worcester, Mass.

BUNTING BUSHINGS

"They're Always in Stock"



You can save money on every Phosphor Bronze Bushing you need by simply taking a look at the list of 154 completely machine finished, ready for assembly, bronze bushings carried constantly in stock at the Bunting factory and all branches.

Small lots at big run prices.

Write for stock list W.

The Bunting Brass & Bronze Co.

755 Spencer St., Toledo, Ohio



NEW YORK
Grand Central Palace
Vanderbilt 7800

BOSTON
26 Oliver St.
Main 8425

CHICAGO
722 So. Michigan Ave.
Wabash 9153

CLEVELAND
1307 E. 25th St.
Main 5991

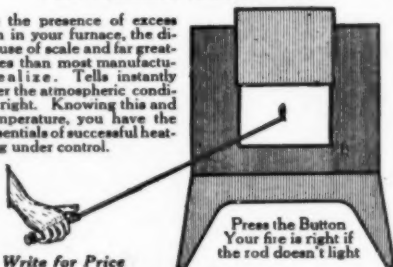
SAN FRANCISCO
198 Second St.
Douglas 6245



Something New — And Good

The Bennett Detectorod

Shows the presence of excess oxygen in your furnace, the direct cause of scale and far greater losses than most manufacturers realize. Tells instantly whether the atmospheric condition is right. Knowing this and the temperature, you have the two essentials of successful heat-treating under control.



Write for Price

Bennett Metal Treating Co.

Elmwood, Conn., U. S. A.

Also ask us about the Bennett Furnace

FERRO CASE

For RAPID Case-Hardening

Never fails to produce a perfectly uniform, glass hard surface. Under similar conditions, you are always sure of getting exactly the same results—it's the acme of reliability. Carbonizing at a lower temperature, it saves time and fuel. Ferro Case is *non-poisonous*, and therefore *always safe*. Made in two grades—M for melting furnace, S for sprinkling.

Tri. B. Brand Pack Carbonizer

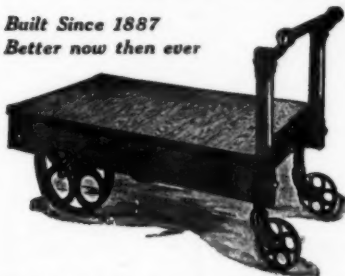
is a light, fast, long-lived carbonizing agent for use in boxes in a muffle furnace. Gives full value for every dollar spent. A trial order is all we ask.

C. G. BUCHANAN CHEMICAL CO., Cincinnati, Ohio—Sta. H.

I Pay 500% Annual Dividends

You Can Prove It Yourself

*Built Since 1887
Better now than ever*



I am the

TOWSLEY TRUCK

I am made in all
styles and sizes
to meet every
requirement.

TAKE A PENCIL and do a little simple figuring. Make your own estimate of how much labor is saved each time a truck is used. Multiply this by the approximate number of times it is employed per day, and this, again, by the labor cost per hour, and you can easily estimate the saving for a month or a year.

EFFICIENCY ENGINEERS have figured this out with great care, and they say that the average truck pays for itself every two or three months, *earning about 500% a year.*

I, the Towsley Truck,

—am such a good truck, because my makers believe that anything which earns 500% a year deserves to be well made. They believe it is economy to build me the best they know how—not to sell at a price, but to last the longest, to give the best service, and to earn the largest dividends. And that is why I have been adopted in so many plants as their standard truck equipment.

*Write to my makers. Tell them your requirements.
Let them help you make money. They are the—*

John T. Towsley Mfg. Co.
1036 Woodrow St., Cincinnati, Ohio

CULLMAN SPROCKETS

STOCK AND TO ORDER



Diamond, Whitney, Baldwin, Duckworth and
Coventry Chains, Block, Roller and
High Speed Silent types on hand



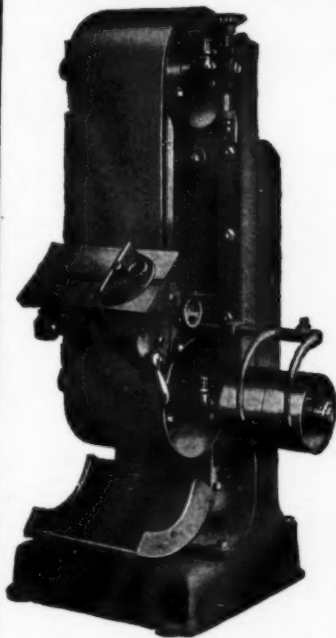
CATALOG

CULLMAN WHEEL CO.,
1359 ALTGELD STREET

CHICAGO

PEERLESS

The Abrasive Belt Method



The No. 6 vertical Peerless showing the adjustable work table, and the dust collector lowered for instant removal of the abrasive belt.

Peerless machines are made in both horizontal and vertical types carrying abrasive belts 9", 14", and 20" wide.

We also make a junior model equipped with both abrasive belt and disc plate.

Peerless machines are rapidly displacing the set up wheel and the disc grinder, and have taken the place of the milling machine in many operations.

Write us for information.

Peerless Surfacing Machine Co., Inc.
TROY, NEW YORK

AUTO REPAIR SHOPS

**The Whitney Cylinder Grinder Will Make Money
For You Regrinding Automobile Cylinders**

The grinding wheel travels in a true circle and grinds off only enough to make a hole that is round and straight. This machine does the work right and does it quick. That's why you can do a profitable business with a Whitney.

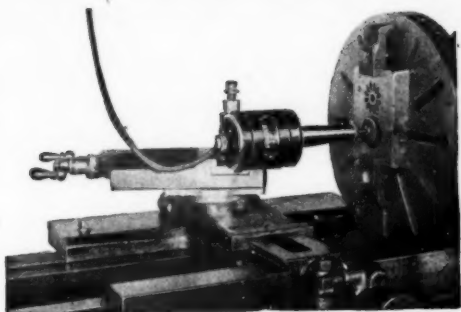


Write for new catalog

BAXTER D. WHITNEY & SON

Incorporated

WINCHENDON, MASS., U. S. A.



HERE'S a sturdy No. 1 J. G. DUMORE grinder in action. Grinding at the rate of 10,000 R. P. M., it is accurately "trueing up", to .0001", a die that had been warped in tempering.

Because of the high speed, even the smallest wheels of this dependable grinder clear themselves and maintain correct size. And you can trust the DUMORE to turn out a job without a sign of chatter marks, taper or bellmouth.


Deep internal work, cylinder or bearing grinding as well as machining of jigs, dies, gages, bushings, etc., is all in the day's work for this perfectly balanced grinder.

No matter what your line of work, you can use a DUMORE to advantage. Ask your dealer or write us for complete data *today*.

WISCONSIN ELECTRIC COMPANY
4351 Sixteenth Street, RACINE, WISCONSIN

DUMORE HIGH SPEED **GRINDERS**

DO You Use AIR?



**THE POWELL
AIR GUN VALVE**

JUST PRESS
THE BUTTON

BUY
POWELL
AIR GUNS
KEEP
CLEAN

CLEANS
WORK BENCHES
AND
MACHINE TOOLS
MADE IN SIZES
1/4" TO 1"

ORDER A SAMPLE
THE W. M. POWELL CO.
1200 DRAPER ST.
CINCINNATI, O.

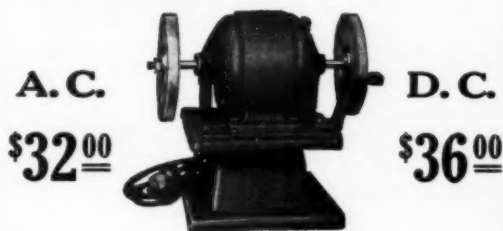
Second-Hand Wood-Working Machinery

For a large list of used wood-working machinery, consult the **Wood-Working Machinery List**, a publication similar to this but devoted to the advertising of saw-mill and wood-working machines. A copy may be had on application to the publisher, **A. H. Hitchcock, 1220-1235 Caxton Building, Chicago, Ill.**

THE NEW BLOUNT SPECIAL

Plain Bearing

Grinder and Buffer
Complete with Motor



General Specifications:—

Motor:—Westinghouse $\frac{1}{4}$ h.p.

Spindle:—Ground and Threaded.

Flanges:—Machined all over.

Bearings:—Bronze.

Rest:—Cast Iron.

Grinding Wheel:— $6'' \times 1\frac{1}{2}''$.

Buff Wheel:— $6'' \times \frac{3}{8}''$.

Base and Pan:—Cast Iron and Slotted for Guards.

Guards:—Furnished at extra cost.

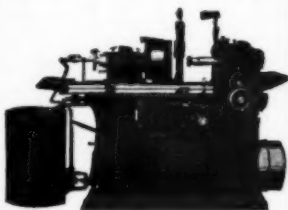
Flexible Cord:—8' to 10' long with Plug.

J. G. BLOUNT CO., EVERETT, MASS.

"HYDROIL" Internal Grinder

for
Greater Production
**BELL-MOUTH
ELIMINATED**
Accuracy
Finish

This machine has a table speed up to 30 odd feet a minute. On short strokes it will reverse 300 times per minute without shock or hand operation.



We will be pleased to give you complete details in substantiation of our claims. Write for bulletin G280H.

MACHINE TOOL DIVISION



DUWELL Motor Driven Bench Grinder Complete as Shown, \$45

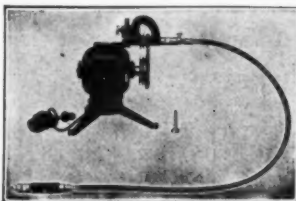


Thoroughly high grade, with powerful dust proof motor, **GEARED** to shaft; bearings Bunting phosphor bronze, steel and fiber gears. Buffer, wire brush wheel, chuck and flexible shaft can be furnished if desired. Universal motor operating on either a.c. or d.c. Indispensable wherever tools must be kept sharp, small parts ground, polished, buffed, cleaned, etc.

MANUFACTURED BY

J. A. FINLEY CO., GRINDER DIVISION
20 Braintree St., Allston, Mass.

Haskins' Flexible Shaft Equipments Combine

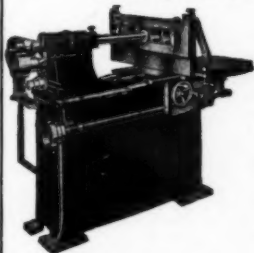


the flexibility of the human hand with the accuracy of a machine. Type H-5 is only one of our complete line.

Write for catalog No. 36 today

R. G. Haskins Company
29 So. Desplaines St., Chicago, Ill.

It's Profitable— To Regrind Auto Cylinders



The "SCHMIDT" Internal Grinder

Equally efficient on large and small diameter holes.

Regrinds ALL makes and sizes of tractor, truck and automobile cylinders.

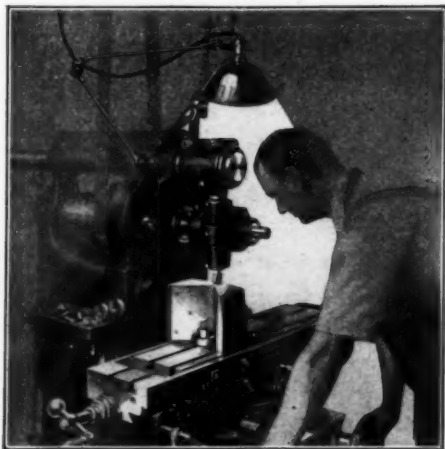
Handles SIX Ford blocks a day; larger ones in proportion.

Accurate, quick, dependable; automatic reverse feed.

Better have all the facts; may we send them?

B. L. Schmidt Co., Dept. A 8, Davenport, Ia.

Spot the Light on Your Work



McCrosky SEARCHLIGHT Lamp Brackets

can be instantly adjusted to any point, horizontally or vertically, within a range of five feet. They are the most economical method of direct illumination. McCrosky Searchlight Bulletin will show you.

Send for a copy today.

McCrosky Tool Corporation

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Second-Hand Machinery

Lists of Second-Hand Machinery, either for sale or wanted, set in uniform style, will be published under this heading at the rate of **50 cents a line**, across the page, each issue, plus **\$2.50** for name and address. Minimum charge, **\$5.00**. No display permitted in this department.

Write directly to those offering the machines for sale for prices and full descriptions. If what you seek is not listed, use the blank enclosed to make known your wants to the publisher, who will pass them along to all Machine Tool List advertisers.

FOR SALE BY

The Sebastian Lathe Co., - - - **Cincinnati, Ohio**

Used tools. All have been in use in our shop and are in good condition.
 Drill press, 14" bench.....\$ 25. | Lathe, 15"x6" Sebastian.....\$180.
 Drill press, 24" Aurora, b. g.....200. | Planer, 24"x24"x8" Lodge & D. 600.
 Cash with order f. o. b. cars Cincinnati, Ohio.

FOR SALE BY

Scott-Bansbach Machinery Co., - **130-132 S. Clinton St., Chicago**

Gear hobber, univ., 48" Superior. | Planer, 36x36x10 Gray, 1 head.
 Gear hobber, univ., 84" Schuchardt | Planer, 16" Robey Smith, bevel gear.
 & Shutte. | Plate, punch, shear and bar cutter,
 Miller, No. 1½ Rockford plain. | double end Pels, 1" thru 1".

FOR SALE BY

The Van Keuren Co., - **362 Cambridge St., Boston 34, Mass.**

GAGE BLOCKS.

A few complete sets Swedish shape gage blocks,—50,000 combinations in ten-thousandths inches. Accuracy certified compared with U.S. Govt. Standards.
 Price \$87.50.

An unusual opportunity. Send for complete specifications.

FOR SALE BY

Knowlton Machine Co., **COLD SAWS.** **Westbrook, Maine**

Several heavy duty cold saws—24" blade, 7½" capacity. Quality guaranteed.
 Get our circular and then make us an offer. This is perhaps the golden opportunity to purchase a modern—fast cutting—reliable—cold saw, at your own price.

FOR SALE BY

McDonald Machinery Co., **1531-33 N. Broadway, St. Louis, Mo.**

"Machinery is our Middle Name"

Boring machine, Rockford horiz.
 Bulldozer, W. & W. No. 24.
 Cut-off mchs., Davis 6", H. & R. 4".
 Drill presses, 10" to 36" single and multiple spindle, 8 large slid. hd.
 Gear hobbors, No. 3 Farwell and Garvin double spindle sprocket.
 Gear shaper, 36" Fellows.
 Grinder, Besly 54" horizontal disc.
 Grinders, cylindrical, surface, knife, univ., centerless, emery stands.
 Lathes, large stock new and good used, all sizes, q. c. g. & standard.
 Keyseaters, La Pointe, Davis No. 2.

Milling machines: Bristol and U.S. hand; LeBlond No. 1½ univ.; Cin'ti No. 2 plain; Kemp Smith No. 2; Becker and Hendey Lincoln; Becker s.d. vert.; Briggs B72" trav. Planers, 24"x24"x6" Ohio and Amer. Presses, Niagara, Swaine, Emco, o. b. i. & straight back & kick. Rivet spinners, vertical and horiz. Screw machines, B. & S. No. 00, P. & W., 3 Gridley auto. 4 sp. 24". Shapers, 16 & 20" Cincinnati b. g. 24" Gould & Eberhardt, 16" Hendey. Wood-Work'g & Sheet Metal Tools.

SECOND-HAND MACHINERY

FOR SALE BY

Niles-Bement-Pond Company,

111 Broadway, New York

Located at our various factories

LATHES.

9"x18" taper, Porter-Cable.
14" & 16"x8" Whitcomb, q. c.
17"x 6' & 8' LeBlond, geared heads.
20"x10' LeBlond, q. c.
24"x24' Niles.
26"x10' Pond, 220 volt, d. c. motor.
28"x12' Pond.
32"x17' Pond, t. g.
36"x12' Pond, t. g., 220 v., d. c. mtr.
36"x17' Pond, taper, 220 v., d. c. mtr.
36"x20' Pond, 220 volts, d. c. motor.

36"x28' Bement, t. g.
42"x17' Pond, t. g., 220 v., d. c. mtr.
42"x20' Niles, t. g.
48"x24' Pond, geared hd., 220 volts,
d. c. motor.
48"x30' Niles, t. g.
50"x17' Miles, old style.
54"x23' American, t. g., 220 volt, d. c.
motor.
63"x40' Bement, t. g.

TURRET LATHES.

1", 2", 2 1/2" and 3" P. & W.
1 1/2" Southworth pl. hd. screw mche.
2"x24" W. & S. hollow hex.
2"x24" Jones & L., cone hd., old.

No. 6-A P. & J., 220 volts, d. c. motor.
21" and 28" Pond rigid turrets.
28" & 34" Gisholts.
32" Conradson-American turret.

PLANERS AND SHAPERS.

20" G. & E. shaper.
30" Stockbridge shaper.
20"x20"x 6' Bement.
24"x24"x 6' Powell.
24"x24"x 6', 8' and 10' Whitcomb-B.
26"x26"x 6' Gray.
30"x30"x 6' & 10' Pond, 2 heads.
30"x30"x 6' to 12' Pond, reversing
motors.
36"x36"x10' to 16' Niles.
36"x36"x12' to 16' Pond, reversing
motors.
36"x36"x24' Bement.
42"x42"x14' Bement.

42"x42"x26' Pond, reversing motor.
48"x48"x16' Pond, reversing motor.
48"x48"x20' Bement, belt.
54"x36"x10' Bement, belt.
50"x36"x22' Pond, reversing motor.
54"x54"x12' to 22' Pond, rev. motors.
60"x60"x14' to 24' Niles, belt.
72"x72"x12' Bement, belt.
72"x60"x14' Bement, reversing mtr.
72"x72"x20' Ridgway, forge, reversing
motor.
76"x72"x26' Pond, reversing motor.
10"x10"x36' Betts, 220 volt, d. c. motor
through belts.

MILLERS AND GEAR CUTTERS.

No. 2-A Brown & Sharpe universal.
No. 2-B single pulley pl., B. & S.
No. 4 plain, cone pulley, LeBlond.
No. 4 plain, cone pulley, B. & S.
No. 5 plain, cone pulley, B. & S.
6x48 to 132" P. & W. old style thread
millers.
14" No. 5-A Lees-Bradner gear
generator.

13" Gleason bevel gear generator.
No. 8 vertical, cone pulley, B. & S.
16" Cincinnati gear hobber (new).
36" to 60" B. & S. spur gear cutters.
No. 3-36" Newark, 220 v., d. c. mtr.
No. 4-48" Newark, 220 v., d. c. mtr.
No. 55-36" Newark heavy pinion,
220 volt, d. c. motor.

DRILLING MACHINES.

1-spindle Pierle, b. b.
32" Aurora, tapping attachment.
40" Aurora, tapping attachment.
4' Bickford speed box radial.
5' Niles full universal, speed box.

5' Ridgway, 220 volt, d. c. motor.
6' Pond, 220 volt, d. c. motor.
6' Niles full universal, speed box.
12-spindle No. 13 P. & W. multiple.

GRINDERS.

Mummert-Dixon port. radial grinder,
220 volt, d. c. motor.
18" Gorton disc grinder.
No. 3 B. & S. universal.
12"x36" Cincinnati, plain.

No. 11 B. & S. internal.
P. & W. old style vertical.
18x6 Reid surface No. 2.
P. & W. thread miller cutter grinder.

BORING MACHINES.

26"-44" Niles side head mill.
51" Niles mill, with turret head.
60" Bement b. & t. mill.
72" Ridgway, 220 volt, d. c. motor.
10' Niles, 220 volt, d. c. motor.

2 1/2" and 3" Lucas horizontal.
4 1/2", 5 and 6 1/2" Niles floor borers.
2 1/2" to 4 1/2" horizontal boring and drill-
ing machines.

SECOND-HAND MACHINERY

Niles-Bement-Pond Co.—Continued

MISCELLANEOUS.

Air compressors, 324' and 835', steam drive.
Blow fan, No. 70 Buffalo.
Crane, 3-ton, 19' span, Niles 3-motor, 220 volt, d. c.
Crane, 20-ton, 49' span, Sellers, 220 volt, d. c.
Engines, 125, 150 and 200 h. p. Philadelphia Corliss.
Generator set, 100 k. w., 22 volt, d. c., direct connected to engine.
Hammer, 800 lbs. Bement, bd. drop.

Hammer, 80 lbs. Bradley, cushion helve.
Heater, 600 h.p. Cochrane, fd. water.
Hot blast apparatus, 72" fan, steam engine drive.
Pumps, 200 to 500 gal., steam drive.
Saw, 6x6 Racine, 220 volt, d. c.
Saw, 5" Nutter-Barnes.
Saw, 7" capacity, Espen-Lucas.
Slotter, 6" Bement.
Slotter, 18" Putnam, 220 volt, d. c. motor.

FOR SALE BY

Chas. Molitor Machinery Co., 118-124 S. Clinton St., Chicago, Ill.

MILLING MACHINES.

No. 1 Cincinnati universal.
No. 2 Cincinnati univ., sgl. pulley.
No. 2 Van Norman duplex.
No. 5 Becker vert., rotary table.
No. 2 B. & S. vertical, rotary table.
No. 3 Ingersoll vertical, sgl. pulley.

Nat. Transit plain, heavy.
Taylor & Fenn vertical.
Rockford horiz. vert., bench type.
Hardinge vert., bench type.
Hardinge horiz., bench type.

LATHES.

38"x14' Niles Bement, qk. change.
24"x10' American, quick change.
28"x12' Niles Bement, qk. ch. (2).
24"x10' LeBlond, quick change.
18"x 8' Von Wyck.
18"x 8' Sidney.
18"x11½' Reed, taper attach.
20"x 8' Monarch, quick change.

16"x 8' Pratt & Whitney, taper (2).
15"x 6' Hendey, tap. & draw att. (3).
14"x 6' Lodge & Shipley, q. c., g. hd.
12"x 5' Monarch, quick change.
12"x 5' Vernon, quick change.
8 Hardinge, Rivett, Stark bench lathes, chasing attach., turrets.
8" Porter Cable.

RADIALS AND DRILL PRESSES.

42" Fosdick, tapping attachment.
24" Foote-Burt heavy.
12" Leland-G., ½ cap. bench.
14" Allen high speed, ½" cap.

21" Cincinnati, sl. hd., tap. att.
48" Almond high speed, wall (4).
Bicycle rim drills.

TURRET LATHES, SCREW MACHINES.

24" Jones & Lamson (2).
Pratt & Whitney flat turret.
No. 3 Warner & Swasey universal.
No. 3 Hardons & Oliver screw mche.
No. 1 B. & S. semi-auto screw mche.

No. 00 B. & S. auto. screw machine.
No. 00 B. & S. auto. form.
No. 3 Foster plain screw machine.
No. 1 Foster plain screw machine.

GRINDERS.

Wilmarth & Morman universal.
No. 1 B. & S. universal.
No. 70 Heald internal.
Van Norman, ball bearing.

Rivett internal.
10"x36" Landis cam grinder.
Pratt & Whitney form grinder.
No. 1 Steel Products univ. gauge.

PRESSES AND PLANERS.

No. 3 American Michigan, horning.
25" New Doty, new.
30" Power arbor press.

48"x12' American planer, 2 heads.
Nos. 1, 2, 3 & 5 American, Toledo, Consolidated.

MISCELLANEOUS.

Beaders, power and hand.
Bolt cutters, 3" Acme, ½" Geometric.
Boring mill, 30" Colburn.
Broaching mche., No. 1 La Pointe.
Gear cutter, No. 5 Brown & Sharpe.
Keyseater, No. 3 Davis.
Keyseaters, No. 3 Backer, No. 2 Davis.
Metal separator, Milwaukee.

Piston machine, Reed Prentice.
Profiler, 2-sp. Pratt & Whitney.
Riveters, Grant and Schuster.
Rollers, 12"x12', 5"x8', 5"x40".
Shear, 36" Niagara pwr., 14 ga.
Shear, 42" Niagara pwr., 14 ga.
Shear, 48", circle.
Steel corrugating machine, 7"x36'.

SECOND-HAND MACHINERY

FOR SALE BY

The H. A. Smith Mch. Co., - 501 E. Water St., Syracuse, N. Y.

Slightly used Machine Tools.

Air compressor, 10x8 Ingersoll-R. class ERI.

Furnace, Stewart No. 14, oven.

Grinder, disc, No. 18 Gardener patternmakers.

Grinders, pl., No. 11 B. & S., single pulley drive, (4).

Grinder, pl., No. 11 B. & S. overh'd c. s.

Grinder, univ. tool & cut., W. & M.

Grinder, universal tool and cutter, No. 1 Brown & Sharpe.

Grinder, universal tool and cutter, No. 1 Norton.

Grinder, No. 13 Brown & Sharpe.

Grinder, 84" Diamond, hvy. duty face, 30 h. p. motor, 99% new.

Lathe, 13x6 Seneca Falls.

Lathe, 16x8 Walcott, d.b.g., q.c.

Lathe, 16x10 Blount speed.

Lathe, 20x10 Monarch, q. c. g.

Lathe, 24x10 American, c. r., t. s.

Miller, No. 2-B Hendey univ.

Miller, No. 2 Kemp Smith plain.

Miller, No. 3 Kemp Smith pl., vert. att.

Presses, No. 2 Rockford inc. fly wheel, (2).

Miller, No. 4 Cincinnati, pl., sgl. pulley dr.

Press, No. 316 Rockford b. g. incl.

Profiler, No. 4 Garvin, rotary table, 99% new.

Presses, power bench, (10), No. 1 Atlas, 14" stroke, bed surface 74x10. Price each, \$50.

Riveter, No. 1 Hi-Spd. Hammer Co.

Riveter, No. 2 High-Speed Hammer Co., heavy duty.

Rivet spinner, Grant No. 81-A, 3/16.

Sand blast barrel, type A, 36x44 New Haven.

Screw mche., No. 0 B. & S., with considerable equipment, almost new.

Screw machine, No. 4 Warner & S., type GFH, power feed to turret.

Shaper, Hendey 15" stroke traverse, with 24" traverse.

Shaper, 16" Ohio heavy duty.

Shaper, 20" Hendey b. g. crank.

Tapping mche., Garvin No. 1 auto.

Turret lathes, 16" Acme geared fric. head, chasing bar equipment, (2).

Turret lathes, flat, (3), 3x36 Jones & L., with some equip., each \$400.

FOR SALE BY

J. L. Lucas & Son Inc.,

3 Fox St., Bridgeport, Conn.

LATHES.

We have a surplus of Lathes to sell. Pick out one and send $\frac{1}{2}$ deposit.

Lucas will not disappoint you.

American and P. & W. bench lathes with equipment, (2).....	\$ 125.
B-4 Dalton cabinet legs, draw-in, grinding attachment, like new.....	175.
12x 5 Hendey rebuilt, taper and draw-in.....	350.
14x 6 Monarch rebuilt, quick change.....	350.
14x 6 South Bend, with extra turret, compound rest.....	225.
14x 7 Hendey, taper attachment, quick change.....	475.
14x 5 Hendey, taper draw-in, quick change, yoke head, rebuilt.....	650.
16x 6 Lodge & Shipley, motor drive, taper, draw-in, grd. hd., 90% new.....	850.
16x 8 Le Blond, taper attachment, nice condition.....	275.
16x 6 Reed Prentice stud lathes (2), each.....	175.
16x12 Bradford lathe, compound and taper.....	325.
16x 8 Hendey, loose change gears, compound and taper, rebuilt.....	325.
16x 6 Cisco, quick change.....	300.
18x 8 Cisco, quick change, collets, excellent shape.....	475.
20x 8 Cisco, quick change, double back geared.....	525.
18x 8 Monarch, quick change, raised to 24", excellent shape.....	400.
19x14 Pond, solid spindle, compound rest.....	400.
20x10 Bradford, compound rest, very fine shape.....	400.
24x10 Reed, compound rest, nice condition, loose change gears.....	475.
22x 8 Pratt & Whitney, compound rest.....	325.
26x14 Bridgeford replanned, quick change, 8" c-c, comp. rest, 95% new.....	1050.
26x16 Pond, solid spindle, 10" c-c, compound rest.....	800.
26x25 Putnam semi-quick change, compound rest, 18" c-c.....	1250.
28x10 Niles-Bement-Pond, quick change, double geared, rebuilt.....	750.
32x24 Pond, compound rest, 19" c-c.....	600.
40x25 New Haven, compound rest.....	850.
30x16 Pond lathe, face plate drive, 8'-6" c-c.....	1350.

As a special inducement will send a fitted chuck with the lathe you want.

Don't wait long.

SECOND-HAND MACHINERY

FOR SALE BY

Russell Machine Co., 28th St. & A. V. R. R., Pittsburgh, Pa.
LATHES.

48"x25" Niles, c. r.
48"x25" Pond, triple geared.
36"x25" Wickes, q. c. g., m. d.
32"x16" LeBlond, c. r., h. s.
30"x26" Hendey, q. c. g., m. d.
27"x15" LeBlond heavy duty.
26"x12" Pittsburgh, dbl. b. g.
26"x20" Putnam, b. g., c. r.
26"x10" Walcott, q. c. g.
24"x16" Johnson lathe.
24"x11" Reed, c. r.
19"x10" LeBlond, motor drive.

19"x 6" Bullard, c. r., b. g.
18"x 8" Sidney, q. c. g., d. b. g.
16"x 6" Blaisdell, h. s.
16"x 6" Fosdick, q. c. g.
16"x 6" Columbus, q. c. g., new.
15"x 8" Schellenbach, d. b. g., h. s.
14"x 6" Lodge-Shiple, q. c. g.
11"x 5" Barnes, h. s.
3"x36" J. & L. turret.
24"x 6" Gisholt tur., 64" h.s., m. d.
10"x 4" Blount speed lathe.
14"x 5" American speed lathe.

PLANERS AND SHAPERS.

36"x36"x12" Bickett planer, 2 hds.
48"x48"x22" Pond planer, 4 heads.
72"x56"x12" Betts planer, 2 heads.

14", 16", 20" & 24" G. & E. shaper.
20" Stockbridge, b. g. shaper.
24" American shaper, m. d.

DRILLS AND BORING MILLS.

20" Barnes "camel back".
20" Champion, new, pl. w. & l.
20" Silver, new, b. g., p. f.
30" Gould-Eberhardt, b. g., upright.
30" Prentice and 36" Snyder, b. g.
36" Prentice high speed.
40" New Haven, b. g. drill.
3", 5" & 7" Prentice radial drills.
64" & 8" Pond radial drills.
3" Fosdick, 9" Baush radial drills.
12" Prentice, 4-spindle drill.
24" Canedy-Otto post radial.

Burke Nos. 0 & 1 sensitive drills.
Champion post drills, 4 & 1".
30" Bullard and W. & S. bor. mills.
36" Bridgeport boring mill.
42" Bullard rapid production.
42" & 50" Bullard bor. m., 2 heads.
51" Niles boring mill.
62" Colburn boring mill.
72" & 84" Pond boring mills.
90" Niles boring mill, 2 heads.
7" & 10/16" Betts, 2 heads.
10" Niles boring mill, 2 heads.

PUNCHES, SHEARS, PRESSES AND ROLLS.

L. & A. size C. multiple punch.
50" throat Reade sgl. end punch and shear; massive construction.
Cleveland punch & shear, 19" throat.
No. 6 L. & A., 24" throat.
No. 45 Buffalo punch, 4x3".
No. 5 Buffalo punch, shear & bar cut.
Niagara plate shear, 97"x1".
Morgan plate shear, 96"x1" thick.
Garrison plate shear, cap. 3"x81", m. d.
Waterbury-Farrel rotary sh., 14" thr.
Mesta plate shear, cap. 4"x156".
Carlin alligator shears, 24" cap.

Lewis alligator shears, 24"
D. & K. alligator shear 44" cap.
Niagara pr. sq. shears., 36"-72"-96".
Stoll 53" & Pexto 53" sq. shears.
500 ton steam hydraulic press.
300 ton horiz. hyd. wheel press.
No. 56 dbl. housing knuckle press.
Stiles No. 3 inclinable press.
Bliss No. 19 & Z. & H. inc. presses.
Bliss No. 764 s. s., d. g. press, 8" str.
Corry Mch. Co. press, 12" stroke.
Straight-side punch press, 4" str.
Ferracute foot presses, 2" stroke.

MISCELLANEOUS.

Air compressors: Auto 3x4; Chicago
6x6, 8x8, 19x12x14; Bury 10"x10".
Band saw, Kane-Roach 30".
Blower, Sturtevant, No. 4, volume.
Blowers, Buffalo No. 7-8 vol.
Blowers, Sturtevant No. 8.
Blowers, Root Nos. 5 rotary.
Bolt cutter, Landis 1 1/2", National 2".
Cold saw, Wagner, size 18 type 3.
Cornice brake, 8" Dreis & Krump.
Crane, 10" I-beam, 12 1/2" span.
Cranes, portable 2 & 2 1/2 ton.
Engine, gas, 15 h. p. Fenner.
Forge, No. 41 Champion new.
Grinder, Greenfield cutter & tool.
Grinders, Plymouth Nos. 13, 14, 17.
Hammers: 1500 lb. Bement steam
drop; 2500 lb. Chambersburg dbl.
leg; 2000 lb. B.M. sgl. leg steam forg.

Hammers, 80 & 100 lb. Bradley.
Hoist, contractor's steam, with 8 h.
p. boiler & 5 h. p. engine.
Keyseaters, Motts & Merrill No. 0.
Millers: Cincinnati No. 2 high duty
universal, B. & S. No. 2-B plain;
Le Blond No. 3H plain horizontal;
Ingersoll slab miller, 24"x24"x12"
bed.
Paper cutter, Golding 36".
Press machines, Merrell 4".
Polishing stand, d. end, 42"x3" arbor.
Polishing stand, Cuyahoga dbl. end.
Ripsaw, table, 49"x30".
Roll lathe, United Engr. 26"x18".
Saw, West Haven, hack, 6"x6".
Saw, Economy No. 7, hack.
Slotter, Niles 15".
Straightening rolls, 24x10 Cleveland.

SECOND-HAND MACHINERY

FOR SALE BY

Frank Toomey, Inc.,

127-131 N. Third St., Philadelphia, Pa.

Machine Tools.

LATHES.

- | | |
|--|---|
| 42" Pond car wheel, motor dr., used. | 16"x8' Sidney, d. b. g., q. c., new. |
| 36"x16' Sidney, d. b. g., q. c., new. | 14"x8' Carroll, q. c., new. |
| 19"x8' & 10' Sidney, d. b. g., q. c., new. | 13"x5'6" Carroll, s. b. g., p. c., new. |
| 17" & 15' Sidney, d. b. g., q. c., new. | 9"x36" Johnson, bench, new. |
| 21" Gisholt turret, 24" hole, used. | No. 6 Warner & S. turret, w. f., used. |
| 4 spindle Gridley, 24" used. | No. 52 Acme automatic, mult. used. |

SHAPERS AND PLANERS.

- | | |
|--|--|
| 16", 20", 24" Steptoe shapers, new. | 36"x36"x10' Cincinnati planer, 3 heads, motor, used. |
| 20" Cincinnati b. g., used shaper. | 24"x24"x8' Hendey planer, 1 head. |
| 36"x36"x14' Ohio planer, 4 heads, belt driven, used. | 24"x24"x6' Pease planer, 1 head. |

MILLERS.

- | | |
|--|-----------------------------------|
| No. 12 Pratt & W. profiler, used. | No. 2 Brown & Sharpe vert., used. |
| No. 4 Brown & Sharpe plain, used. | No. 1 Dow plain, new. |
| No. 0 Steptoe plain, b. g., p. f., used. | No. 3 Cincinnati, univ., used. |

DRILLING MACHINES.

- | | |
|--|---------------------------------------|
| 23" Rockford, sl. hd., b. g., used. | 26" Rockford, sl. hd., b. g., used. |
| 28" Superior, s. h., b. g., p. f. new. | 20" Excelsior & Champion, b. g., new. |
| 32" Superior, b. g., p. f., new. | 4 spdl. Superior hi-speed, used. |

MISCELLANEOUS.

- | | |
|--|---------------------------------------|
| Bolt cutter, Landis 4", used. | Keyseaters, Nos. 2 & 4 Catlin, used. |
| Boring mill, 42" Bullard, vert., used. | Pipe machines, 2", 4", 6" Oster, new. |
| Boring mill, 56" Niles vert., used. | Presses, large stock, used. |
| Grinder, 10"x36" Norton pl., used. | Punch & s., Buffalo "Iron Worker". |
| Grinder, 8x20" Modern plain, used. | Slotter, 10"-12" Dill, used. |
| Grinder, No. 1 Fraser univ., new. | Wood working mchy., new & used. |

FOR SALE BY

P. Prybil Machine Co., Inc. 512-524 W. 41st St., New York, N. Y.

LATHES.

- | | |
|---|-------------------------------------|
| 14"x6' stud and bolt, P. Prybil. | 30"x16' q. c. g., Pond. |
| 16"x6' polishing, P. Prybil. | 30"x32' back geared, shaft lathe. |
| 20"x12' safety stops, taper attachments. Lodge & Shipley. | 36"x12' q. c. g., Lodge Davis. |
| 24"x14' q. c. g., Lodge & Shipley. | 40" raised 50"x14', q. c. g., Pond. |

MILLING MACHINES.

- | | |
|------------------------------------|--------------------------------------|
| 64"x16" table, spindle cone, Cinn. | 68"x16" tbl., s. box and pump, Cinn. |
|------------------------------------|--------------------------------------|

DRILL PRESSES.

- | | |
|---|---|
| 9" Pulley drilling & tapp. P. Prybil. | 17" back geared, Aurora. |
| 12" post drill, 114"x18" table, hand feed, P. Prybil. | 20" adjustable table, Reed. |
| 12" sensitive, 11"x11" table, Washburn Shops. | 30" sliding hd., adjustable tbl., Pond. |
| 12"x4 spindle, 36"x12" table, Reed. | 30" sliding hd., power feed, Pond. |
| 12 spdl. mult., 16"x24" tbl. Baush. | 45" arm radial, 37"x6" bed, univ. |
| | 72" arm radial, 4' 10"x6" bed, Warren. |

PULLEY LATHES.

- | | |
|-------------------------------------|------------------------------------|
| 36" dia. x24" face, 2 heads, Niles. | 50" dia x30" face, 2 heads, Niles. |
|-------------------------------------|------------------------------------|

PLANERS AND SHAPERS.

- | | |
|------------------------------------|--|
| 16" stroke, self-feed, Steptoe. | 36"x36"x6", one head, Pond. |
| 24" stroke, friction gear, Hendey. | 48"x48"x16" open side, Detrick & Harvey. |
| 26"x26"x6" one head, Pond. | |

BORING MILLS.

- | | |
|--------------------------------------|--------------------------------------|
| 50" pulley borer, power feed, Niles. | 84" 2 heads, 67" table, Niles. |
| 60" 2 heads, 54" table, Niles. | 84"x36"x3" bed horiz. borer, B. & S. |

MISCELLANEOUS.

- | | |
|--------------------------------|--------------------------|
| Arbor presses, various sizes. | Forges and blowers. |
| Broaching machine. | Grinders, various sizes. |
| Electric drills; air riveters. | |

SECOND-HAND MACHINERY

FOR SALE BY

Lucas & Son, Inc.,

PLANER VISES.

Bridgeport, Conn.

3 Skinner Planer Vises, like new, 15" and 18" jaws; 50% of new price.

FOR SALE BY

Cyril J. Bath & Co.,

1603 St. Clair Ave., N. E., Cleveland, O.

HOLT CUTTERS AND TAPPERS.

4" capacity Landis, excellent, (2).

DRILLING MACHINES.

20" Silver, whl. and lever feed; new.

20" Silver, back grd., power, wheel

and lever feed; new.

20" Ryerson back geared.

24" Cincinnati-Bickford, sl. hd., with

and without tapping attach., (4).

BORING MILLS.

No. 21 Lucas horizontal boring mill, 24" and 4" spindles; excellent.

GRINDERS.

No. 11 B. & S. pl., cap. 5x30"; good.

Landis 10x30", plain, with internal

grinding attachment; good.

Yankee twist drill; good.

New Yankee drill 2 1/2".

LATHES.

16"x 6' LeBlond, q. c. g., comp. rest,

taper attach.; good.

18"x 9' Lehmann, q. c. g., comp. rest,

taper attach.; new.

20"x10' Wickes, q. c. g., compound

rest; new.

12x48" Blount spd., good, chuck, etc.

MILLERS.

No. 2-A Brown & Sharpe universal,

gear drive and feed.

No. 3 Brown & Sharpe plain, cone

drive, gear feed; good.

No. 3-B heavy Brown & Sharpe

plain, single pulley, excellent.

No. 12 B. & S. Lincoln; good

No. 7-H Becker, Lincoln; fair.

Type A Briggs Lincoln; excellent.

No. 2 Brown & Sharpe vertical; fair.

PLANERS.

24"x24"x6' Gray, old but good

24"x24"x6' Liberty, new, 1 head

SHAPERS AND SLOTS.

16" Cincinnati b. g. crank, new.

20" Whipp b. g. crank, new.

TURRET LATHES AND SCREW MACHINES.

24" Gisholt turret, 6 1/2" hole, good.

No. 4 B. & O., pwr. fd. to turret and

slide, large assortment tools and

collets; very good, (3).

MISCELLANEOUS.

Air compressor and tank.

Arbor press, No. 5 Greenerd geared,

very good.

Arbor press, floor type.

Band saw, metal, Klemm, good.

Centering mche., Cadillac; excellent.

Centering mche., Whiton; good

Cold saw, No. 114 Higley, 4" rd. fair.

Draw benches, No. 2 Waterbury-F.,

extra cap. 20', excellent, 60,000 lbs.

capacity.

24" Aurora, sliding head, gear feed,

with tapping head, (4).

28" Cincinnati-Bickford, sliding hd.

and tapper, (4).

Bausch 12-spindle, 4" cap., square hd.

28" Cincinnati.

BORING MILLS.

No. 21 Lucas horizontal boring mill, 24" and 4" spindles; excellent.

GRINDERS.

18" Bryant int.; excellent shape.

16x48 Cincinnati universal; excellent

condition.

No. 3 Brown & Sharpe universal,

complete, excellent.

LATHES.

14"x 6' LeBlond, c.r., belt fd.; good.

16"x 8' LeBlond, comp. rest, q. c. g.

and chuck; good.

16"x 6' American, all geared head,

motor drive, late model; good.

20"x10' American, q. c. g., dbl. b. g.,

heavy model; excellent.

MILLERS.

No. 1-B Milwaukee univ., single

pulley dr., pwr. fds. in all direc-

tions, div. hd., vert. att.; very good.

20"x7 1/2"x18" Osterlein pl.; old, fair.

24"x7 1/2"x18" Osterlein plain, 10" di-

viding head; good.

Kemp Smith Lincoln type millers (2).

Rockford power feed miller, table

30"x7 1/2".

Burke milling mch., practically new.

PLANERS.

Lee 16"x36" planer.

SHAPERS AND SLOTS.

20" Ohio b. g. crank, good.

16" Betts crank slotter, good.

TURRET LATHES AND SCREW MACHINES.

21" Gisholt turret, 3 1/2" hole, good.

No. 53 National Acme standard

automatics, 4" cap., with collets

and tools; in good condition, (9).

MISCELLANEOUS.

Crankshafts for No. 59 Toledo and

No. 77 Bliss presses.

Hammer, Pettengill power, small

forming.

Keyseater, No. 1 Baker, good.

Press, power, 15-ton Lucas forcing,

excellent.

Welder, Federal special, spot, almost

new.

Twist drills, reamers, milling cut-

ters, etc.

SECOND-HAND MACHINERY

FOR SALE BY

Reliance Machinery Sales Company

Brighton Road at Pennsylvania Ave., Pittsburgh, Pa.

Blower, No. 6 Sturtevant, 2555 cu. ft. -----	\$ 70.	Lathe, 28"x16" Fitchburg, c. r. -----	\$350.
Blower, No. 8 Sturtevant, 6215 cu. ft. -----	125.	Lathe, 8"x20" Wood with motor -----	40.
Bolt cutter, Reliance, $\frac{3}{4}$ " to 1 $\frac{1}{2}$ " -----	250.	Miller, No. 2 Cincinnati -----	450.
Boring mill, B. & S. hor., 3" sp. -----	650.	Miller, No. 3 Cincinnati -----	600.
Boring mill, No. 2 Rockford horizontal -----	850.	Oil separator, No. 2 American -----	125.
Cut-off machine, Cochrane-Bly, capacity 4 $\frac{1}{2}$ " -----	275.	Pipe mche., E. C. & B. $\frac{1}{2}$ " to 2" -----	250.
Hammer, 100 lb. Kady, belt lift -----	100.	Pipe mche., Williams, $\frac{1}{2}$ " to 3" -----	300.
Lathe, No. 504 Rivett, c. r. -----	100.	Press, Ferracute, foot power -----	25.
Lathe, 16"x 8" Fitchburg, p.c.g. -----	150.	Punch, L. & A. 5" throat, $\frac{1}{2}$ " x $\frac{1}{2}$ " -----	400.
Lathe, 14"x 6" Hendey, q. c. g., t. a. -----	400.	Riveter, Allen, 8" b., 19" thr. -----	175.
200 other bargains in stock.		Shaper, 16" S. & M. crank -----	250.
		Shaper, 16" G. & E., b. g. crank -----	300.
		Shear, Lennox throatless, $\frac{1}{2}$ " -----	300.
		Turret, W. & S., capacity 1" -----	250.

What have you for sale?

FOR SALE BY

A. D. White Machinery Co., 108-114 N. Jefferson St., Chicago

ENGINE LATHES.

18"x 7' Chard, d. b. g., p. c.	20"x 8' Reed, motor driven.
18"x 9' Bell, d. b. g., p. c.	22"x10' Davis, d. b. g., q. c.
20"x 8' Hamilton, d. b. g., s. q. c.	32"x10' Pond, s. b. g., p. c.
20"x 8' Lodge & Shipley, grd. hd.	34"x10' Putnam, s. p. g., p. c.
20"x 8' Reed, s. b. g., p. c.	38"x14' Fifield, s. b. g., p. c.

MILLING MACHINES.

No. 6 Rockford, plain.	No. 1 Newton slab.
No. 25 Becker, horizontal.	Type "A" Briggs (2).

DRILL PRESSES.

20" Mechanics, friction.	2 spindle Guarantee, h.s., b. b.
26" Barnes, sliding head.	4 spindle Reed sensitive, $\frac{1}{2}$ " cap.
28" Barnes, sliding head.	24" No. 24 Foote-Burt heavy duty.
36" Aurora, sliding head.	2 spindle 24" Barnes, all grd. gang.

PUNCH PRESSES.

No. 8 & No. 11 Bliss auto. button presses.	New Swaine o. b. i. presses Nos. 27, 29, 31, 33, 35 and 37.
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TURRET LATHES AND SCREW MACHINES.

No. 3 Foster, plain head.	No. 3 Stecher, hand, (4).
20"x5' Bridgeport, (2).	16"x5' Dreeses Fox.
20"x5' Fay & Scott universal.	18"x6' American Fox.
22"x5' Reed.	18"x6' Springfield Fox.
21" and 24" Gisholts.	7/16" Cleveland, ratchet feed.
3x36" Jones & Lamson.	1" Cleveland, semi-auto.
18"x10" Milholland.	1" Cleveland, friction.
1" Biggs (2).	1" Cleveland, jigger.
No. 1 Garvin, hand, (4).	1" Hartford, (2).
No. 1 B. & S. auto. $\frac{1}{2}$ " (2).	1" Cleveland, jigger.

BOLT CUTTERS AND PIPE MACHINES.

14" Acme, double head.	4" Saunders.
3" Acme single head, (2).	8" Eaton, Cole & Burnham.
4" Acme single head.	

MISCELLANEOUS.

Blower, No. 7 Sturtevant, high press.	Grinder, Leland & F., wet.
Boring mch., 24" bar, Binsse horiz.	Keyseater, No. 2 Mitts & Merrill.
Gang splitter, takes 21" sheets.	Planer, 30"x30"x10' Pond, 1 head.
Gang splitter, takes 29" sheet.	Profiler, 2 spindle Putnam.
Gas engine, 35 h. p. Columbus.	Riveter, $\frac{1}{2}$ " Shuster.
Grinders, No. 2 Woods tool & cutter.	Saw, No. 54 Nutter-Barnes.
Grinder, No. 2 Oesterlein tool & cut.	Screw slotter, Garvin hor. 3/16 to $\frac{1}{2}$ ".
Grinder, 12x32 Landis plain.	Tapper, No. 2 Garvin, auto.
Grinder, Springfield, 2-wheel wet.	

SECOND-HAND MACHINERY

FOR SALE BY

Badger-Packard Mchry. Co., 133-9 W. Water St., Milwaukee, Wis.

Boring mill, 34" Colburn.
Brake, No. 138-36" Chgo., 3/16" cap.
Broachers, Nos. 2 & 3 La Pointe.
Drill, 32" Barnes, s.h., b.p.f.
Drill, 36" Snyder, s.h., b.p.f.
Gear hobbers, Nos. 1 & 3 Adams.
Lathe, 14"x6" Mulliner.
Lathe, 20"x8" Walcott.

Lathe, 24"x12" Lodge & Shipley.
Miller, No. 3 Becker-Brainard, vert.
Miller, No. 7-H Becker, Lincoln type.
Planer, 36"x36"x9" Lodge & Davis.
Shear, 73" Stoll gap, 1/2" capacity.
Slotter, Pratt & Whitney, 24" stroke.
Turret lathe, No. 6 Warner & S.
Turret lathe, 54"x10 Potter & J.

Large stock of other equipment; send us your inquiries.

FOR SALE BY

Austin Machinery Corp'n, 609 Railway Exchange Bldg., Chicago

AIR COMPRESSOR.

Ingersoll-Rand Imperial type 10x22, 1180 cu. ft. per minute. Belt-driven by 200 h. p. motor.

BORING MILLS.

No. 10 Beaman & Smith horizontal; bed, 72"x24"; table, 48"x24"; motor driven.
No. 2 Pedrick column type, with floor plate and outer support.
60" Niles vertical, 2 swivel heads, friction feed, 5 step cone, 5" belt.
42" Bullard rapid production, 1 swivel and 1 turret head.

BULLDOZER.

No. 5 Blakeslee worm dr., 20" str. Face of cross hd. 65"x14". Die space 39".

GRINDERS.

No. 1 LaSalle surface.
No. 12 Brown & Sharpe; live head operated by flexible shaft.
13x43 Modern universal No. 3, over-head countershaft.

No. 2 Ohio, all hand feeds.
Springfield variety, 24" ring wheel; hand feeds.
Walker universal, with internal spindle.

LATHES.

48"x22" Bridgeford, latest type grd. head; arranged for grd. motor dr.; same as new; 4 face plate jaws.

42" Niles roll turning, with 3 carriages for turning printing, paper mill and other rolls.

48"x20" Sellers external face plate drive, 5-step cone, 5" belt.

MILLING MACHINES.

No. 5 Becker vertical.
Model C Becker vertical.
No. 14 Garvin knee type.
No. 14 Garvin vert., planer type, (2).
No. 11 B. & S. plain.

Duplex Newton, with planer type table operated by screw.
Pratt & Whitney automatic.
6"x14" Pratt & Whitney thread miller.

MEASURING MACHINE.

6"x80" Pratt & Whitney measuring machine.

PRESSES.

No. 4 Industrial, upright, dbl. side, 18" and 24" throats, 6" stroke.
Arranged for geared motor drive.
857 & 856 Toledo rack & pinion, (3).
604 Bliss rack & pinion, (3).

1154 Toledo wiring, 28" stroke, (2).
D45 Ferracute horiz. bulldozer, 48" stroke, capacity 10" stock, (3).
No. 5 Bliss Stiles, 6" belt, flywheel type.

PLANER.

36"x36"x18" Cincinnati, 2 heads on rail, arranged for motor drive.

RADIAL DRILL.

Cleveland wall radial, 15' arm, wheel & lever feed, 6' vertical adjustment.

SLOTTERS.

18" Drill, arranged for motor drive, table 34".
36" Niles, circular table 50", cross feed 30", longitudinal feed 50".

SHEARS.

No. 134 Marshalltown rotary, with 6' 3" throat, arranged for motor drive.

MISCELLANEOUS.

Crane motors, new Standard, and accessories, (40).
Drill press, Baker, 24" capacity.
Furnace, Quigley, 9' 8"x31' 5"x9' 10", complete with 9 oil burners and electric pyrometers.
Testing machine, 100,000 lb. Tinius Olsen, motor driven.

SECOND-HAND MACHINERY

FOR SALE BY

Botwinik Brothers,

21 Sylvan Ave., New Haven, Conn.

Grinder, Landis No. 4 cylindrical, complete, price.....	\$ 1100.
Lathes, Hendey, q. c. geared, yoke head, taper attachment, etc., each.....	500.
Miller, Brown & Sharpe No. 1 universal.....	500.
Planers, Rowland 20" x 20" x 8', single head, metal working, each.....	200.
Shapers, Stockbridge 16" crank, complete, brand new, each.....	350.

FOR SALE BY

A. M. Stoehr Machinery Co., 844-846 North Wells St., Chicago, Ill.

Blue printing and drying machine, continuous, 42" cap., 220 volt, d. c.	Milling machines, Nos. 1 and 2 universal, also 15 other sizes plain.
Bolt cutter and tapper, 1/2" cap.	Pipe machine, 6" Jarecki, mtr. dr.
Boring mill, horizontal, 3" bar.	Planer, 22" x 22" x 6" Whitcomb.
Boring mills, 28 & 40" Bullard.	Presses, No. 4 Robinson, Nos. 3A & 4 Am. Can, Nos. 30 & 45 Crosby.
Drill presses, new, 20", back gear, power feed, each \$120.	Punch & shear, No. 13 W. & W. Co., 28" throat, arct. jaw, 1 1/2" in 1".
Drill pr., 2-sp. Moline "Hole Hog".	Saw, metal band.
Drill presses, 1 & 3 spindle H. & W.	Screw machines, No. 1 Pratt & Whitney, No. 53 Acme auto., 1 1/2" and 2" Cleveland sgle. spdl., 2 1/2" Gridley, single spindle.
Gear cutter, Belton No. 10.	Shears, bar splitting and square.
Gear cutter, 24" Gould & E.	Tapping machine, Tuttle, 1/2" cap.
Gear cutter, 60" Gould & E.	Tell call signal system.
Grinder, Heald, piston ring, mag. ck.	Turret lathes, No. 5 B. & O., 16" W. & S., 18" P. & W. geared hd.
Grinder, 3x18 Norton.	
Grinder, No. 75 Heald.	
Grinder, 12x24 Modern, self-cont c.s.	
Hammers, 500 lb. Beaudry, & others.	
Lathes, all sizes.	

FOR SALE BY

Jones Machine Tool Co.,

435 E. Pearl St., Cincinnati, Ohio

ENGINE LATHES.

14" x 6" Bradford, q. c.	24" x 12" LeBlond, q. c.
16" x 8" Bradford, q. c.	24" x 12" Boye & Emmes, l. c.
16" x 8" Prentiss, grd. hd., q. c.	24" x 16" Star, l. c.
17" x 8" Sidney, q. c.	32" x 12" Boye-Emmes, q. c.
18" x 8" Walcott, q. c.	36" x 24" American, q. c.
20" x 8" Boye & Emmes, q. c.	36" x 28" Wickes, q. c., motor drive.

DRILL PRESSES.

22" Prentice, p. f.	24" Prentice, s. h., taper attach.
24" Aurora, b. g., s. h.	36" American sensitive radial.
24" Aurora, s. h., taper attach.	28" Superior, s. h., b. g.

SHAPERS AND PLANERS.

14" Steptoe crank.	24x6 New Haven, 1 head.
16" Smith & Mills crank.	24x6 Gray, 1 head.
24" Queen City crank.	24x10 Cincinnati, 2 heads.

MILLING MACHINES.

No. 5 Becker vertical.	No. 3 Milwaukee, plain, s. p. drive.
No. 2 Owen plain.	No. 4 Cincinnati, plain.
No. 3 B. & S. plain, s. p. drive.	No. 1 Knight vertical miller.

MISCELLANEOUS.

Automatics, Cleveland, 2 1/2" cap.	Pipe machines, 4", 6" & 8".
Bolt cutter, 1 1/2" National single hd.	Press, No. 5 Toledo, o. b. inc.
Gear cutters, 36" & 36" B. & S.	Presses, P-2 & P-3 Ferracute.
Grinders, No. 60 Heald (2).	Square shear, 97" Toledo, 10 gauge.
Grinder, 14" x 72" Norton.	Square shear, 36" foot power, 20 ga.
Grinder, B. & S. surface, planer type.	Turret lathes, 24" Gisholt.

Let us know your wants. We can supply you.

SECOND-HAND MACHINERY

FOR SALE BY

D. E. Rowlingson, 240 Jay St., P. O. Box 265, Utica, N. Y.

Iron Working Tools at net cash prices to close out.

Drills, bench, Burke, new, $\frac{1}{2}$ h. p. motor driven, with Jacobs chuck, (2) \$ 50.
 Drill, bench, 10" Burke, belt driven, new, with Jacobs chuck..... 25.
 Emery stand, 4" Myers, double end on pedestal..... 20.
 Engine lathe, 13"x64" Pratt & W., taper attach., b. g., c. s..... 175.
 Lathe, 26"x20"; set 2" and 6" blocks to make 30" and 36"..... 600.
 Motor, 5 h. p. Cronk, 2 ph., 60 cycle, 220 v., new bearing..... 60.
 Planer, 26"x26"x10" Powell, A-1 order. Bargain..... 650.
 All the above machines are in good operating order and ready for immediate shipment. Write me about your needs in new or used machinery.

FOR SALE BY

Herman L. Winterer, 943-53 N. Front St., Philadelphia, Pa. LATHES.

43"x17 $\frac{1}{2}$ " Bement-Miles.
 42"x16" Niles taper att.
 37 $\frac{1}{2}$ "x14" Johnson d. b. g., q. c. f., t. a.
 32"x12" Pittsburgh, heavy duty, q. c. g.
 26"x16" 6" American, q. c. g.
 27"x12" Bullard.
 26"x11" Wickes, q. c. g.
 26"x10" Niles, q. c. g.,
 25"x14" Hendey, q. c. g., taper attach-
 ment, oil pan, (2).
 24"x14" Porter.
 21 $\frac{1}{2}$ "x8" LeBlond.
 20"x8" Walcott, d. b. g., q. c. g., (2).
 20"x8" Whitcomb Blaindell, q. c. g.
 20"x10" 6" American pat. hd., q. c. g.
 18"x8" Prentice, q. c. g.
 19"x10" Draper, patent head.
 18"x7" Chard, d. b. g., semi q. c. g.
 18"x6" to 8" lathes, (6).
 16" Lathes, (10).
 And many others.

TURRET LATHES.

3 $\frac{1}{2}$ x28" Pond, triangle.
 3x36" Pratt & Whitney, hollow hex.
 20"x7" 6" Pratt & Whitney, back grd.
 19"x7" Fay & Scott, back grd.
 No. 22 $\frac{1}{2}$ Garvin Monitor.
 17"x6" Warner & S., bk. grd., (3).
 16"x6" Johnson, back grd.
 No. 5 Bardons & Oliver, back grd.
 No. 3 Bardons & Oliver back grd.
 14 $\frac{1}{2}$ "x5" 3" Pratt & Whitney, (2).
 No. 3 Foster Kimball.

DRILL PRESSES.

40" Barnes horizontal radials, (2).
 36" Bickford radial, circular base,
 motor driven.
 14" 6-spindle Allen sensitive.
 20" Champion, new, (6).
 Plain drills, all sizes.
 Drill presses, assorted sizes.

MILLING MACHINES.

38"x6" Ingersoll horizontal slab.
 No. 5 Cincinnati, table 9 $\frac{1}{2}$ x50 $\frac{1}{2}$ ".
 No. 15 Garvin, table 12x42".
 No. 3 Becker Brainard, table 12x40".
 No. 3 Hendey-Norton, q. c. g.
 No. 0Y Brown & Sharpe plain, (2).
 No. 2B heavy, Brown & Sharpe,
 single belt drive, q. c. g.
 Whitney hand miller.
 No. 27 Industrial Works, Lincoln
 type, table, 7x27".
 Gooley & Edlund, 7 $\frac{1}{2}$ x46" table.

PLANERS AND SHAPERS.

48"x48"x16" Pond planer, 3 heads.
 30"x30"x8" Putnam planer.
 26 $\frac{1}{2}$ "x26" x 6" Hendey planer.
 48" Morton draw-cut shaper.
 39" Pedrick & Ayer, open side.
 26" Cincinnati.
 18" double head, 16" bed Bement
 shaper, motor driven.
 14" Flather shaper.
 14" Warren shaper.

MISCELLANEOUS.

Boring mill, 100" Sellers, vert. dbl. hd.
 Boring mill, car wheel, 60" Newton.
 Boring, drilling and milling machine,
 17 $\frac{1}{2}$ " Bement Niles horizontal.
 Die sinking mche., Keller, motor dr.
 Grinder, 13 $\frac{1}{2}$ "x5" Landis universal.
 Grinder, disc, No. 17 Bealy.
 Grinder, disc, No. 1 Bealy.
 Hammer, 200 lb. Beaudry Cham-
 pion.
 Hammers, 60 lb. Bellefonte upright; 2.
 Keyseaters, 18" stroke Morton, (2).
 Keyseater, Mitts & Merrill No. 5.
 Pipe machine, 8" Eaton, Cole & B.
 Punch presses, all sizes, (56).
 Punch & shear, Industrial Wks. d. e.,
 capacity 4" in 4", squaring 4"x6".
 Slotter, Newton, 18", cir. table.
 Tooth round'g mch., Schuchardt & S.

Large assortment of General Machinery. Send for Complete List.

SECOND-HAND MACHINERY

FOR SALE BY

The Randle Machinery Co., 1723 Powers Street, Cincinnati, Ohio

ENGINE LATHES.

16"x 8' American, sgl. pulley drive, geared hd., q. c.....	\$ 550.	24"x16' Star, loose change.....	\$ 600.
18"x 8' LeBlond, loose change	450.	36"x14' Putnam, loose change	1,100.
20"x10' Hamilton, loose chg...	500.	36"x24' American, quick chg...	2,250.
		24"x10' Hendey, q. c.....	1,200.

PLANERS.

24"x24"x17' New Haven, one head.....	\$ 475.
42"x42"x24' Gray, 2 heads, belt drive.....	2,600.
32"x32"x 8' Gray, 1 head, belt drive.....	900.
Pedrick & Ayer open side, planes 30" wide, bed 11' long.....	1,000.

MISCELLANEOUS.

Boring mill, 60" Niles vert.....	\$1,500.	Shaper, 16" Barker, b. g. crank	\$ 450.
Boring mill, 10' Niles vert.....	4,000.	Shaper, 24" Barker, b. g. crank	625.
Boring mill, No. 2 Barret, 24x15	1,600.	Shear, 11' squaring, belt drive, cap, 1/2" steel.....	1,200.
Drill press, 45" upright, back geared, power feed.....	300.	Turret lathe, H-21" Gisholt, late type.....	1,500.
Grinder, No. 60 Heald cylinder	1,250.	Turret lathe, flat, 2x24" Jones & Lamson.....	350.
Miller, No. 2 Rockf'd univ.....	800.		
Miller, No. 2 Cincinnati pl.....	760.		
Miller, No. 1 Cincinnati univ ..	580.		

Many other bargains. Send us your requirements.

FOR SALE BY

Wm. C. Johnson & Sons Machinery Co.,

1001-3-5 N. Sixth St.,

St. Louis, Mo.

LATHES.

11"x 4' Shepard.	26"x10' heavy plain change.
12"x 8' Barnes.	28"x12' Walcott, q. c.
13"x 6' Carroll-Jamieson.	26"x18' Springfield, motor-drive.
16"x 6' Von Wyck.	30"x12' Pond, q. c.
18"x10' Rahu & Larmon.	33"x20' Draper.
21"x 9' Lodge & Davis.	36"x16' Fitchburg.
24"x12' Lodge & Shipley, q. c.	50"x20' New Haven trip. geared.
25"x16' Niles, plain change.	54"x16' Putnam.
26"x10' quick change gear.	

SHAPERS AND PLANERS.

16" Smith & Mills.	30"x30"x 8' Gray.
24" Gould & Eberhardt.	32"x32"x12' Gray.
26"x26"x 8' Cox planer.	36"x36"x 8' Gray.
24"x24"x 8' Cincinnati planer.	

DRILLING MACHINES.

15" Barnes.	5' Niles radial.
24" Aurora, sliding head.	5' Bickford radial.
40" Aurora, sliding head.	No. 2 Pawling & Harnischfeger hor.
30" arm Fosdick radial.	

MILLERS.

No. 12 Kempsmith plain.	No. 4 LeBlond plain.
No. 3 Kempsmith universal.	No. 5 Cincinnati.
No. 3 Becker plain.	No. 24 Rockford universal.
Knight Vertical.	Owen duplex.

MISCELLANEOUS.

Bulldozer, 75-ton Lorie.	Pipe machine, 12" Curtis Forbes.
Grinder, 5"x18" Ott.	Saw, No. 12 Higley.
Grinder, 8"x30" Modern.	Screw machine, 14" Foster.
Grinder, No. 1 Brown & Sharpe.	Screw machine, No. 1 Wood turret.
Grinder, 8"x18" Ott universal.	Screw machine, No. 3 Wood turret.
Keyseater, No. 7 Catlin.	Shear, 5' squaring No. 14.
Marking machine, Mathews.	Slotter, 36" Niles.
Motors: 5, 10, 15, 20 & 30 h. p., d. c.	Slotter, 48" Betts.
Motors: 5, 10, 15, 20 & 30 h. p., 3 phase, 60 cycle.	Steam pumps, Union.
Pipe machine, Forbes 8".	Tapper, No. 2 Garvin.

SECOND-HAND MACHINERY

FOR SALE BY

J. L. Lucas & Son, Inc.,

Bridgeport, Conn.

Lathe, 24"x12' Joseph Crawford quick change screw cutting, 2" hollow spindle, 3-step 5" cone, back geared, taper attachment, compound rest, chuck; condition equal to new; price for quick sale f. o. b. cars.....\$ 750.
Miller, No. 1 Brown & Sharpe, back geared, 3 T-slots in table..... 300.
Miller, No. 1 Brown & Sharpe universal, with dividing heads, straight arm, quick change and chain feeds; excellent condition; price..... 475.
Wire and cut-off machine, 1/2" Shuster, 12' maximum cut-off; very excellent condition; price f. o. b. cars..... 500.

FOR SALE BY

The Strong, Carlisle & Hammond Co., Cleveland, O., Detroit, Mich.

ENGINE LATHES.

13" Resik double end taper turning key lathe.
12"x 4' Porter-Cable, c. r., q. c. g., pan bed, (4).
14"x 6' Hamilton.
14"x 6' Prybil, stud.
15"x 6' Sebastian, c. r., geared hd.
16"x 6' Reed, r. and f.
18"x 6' Blaisdell, p. r. and t. a.
18"x 8' Chard, c. r., 3-st. cone, q. c. g.
18"x 8' Greaves & Klusman, c. r. & t. a., 3-step cone, q. c. g., pan bed.

TURRET LATHES AND SCREW MACHINES.

14" Lodge & Davis, plain head.
24" Davis turret boring and chucking lathe, with forming rest.
22" Lodge & Shipley heavy duty turret boring lathe.
14" Acme screw mche., p. f. to tur.
No. 2-A Warner & Swasey g. h. turret lathes, (2).
No. 3-A Warner & Swasey g. h. turret lathe.
26" Gisholt heavy duty turret lathe.
16" Warner & Swasey, plain head, with air chucks (3).
2"x24" Jones & Lamson g. h. flat turret lathe.
No. 60 Brown & Sharpe auto, (4).
No. 0 Brown & Sharpe auto, (6).
No. 2 Brown & Sharpe auto, (3).
1 to 1/2" Model A Cleveland auto.
No. 2 Warner & Swasey p. h. screw machines, a. c. & b. f., with p. f. to turret (4).

MILLING MACHINES.

No. 1 Rockford, hand, p. f.
No. 15 Garvin plain, b. g.
No. 22 Garvin, vertical spindle.
No. 6 Becker, vert., rotating table.
No. 13B Brown & Sharpe plain.
No. 14-B Kearney & Trecker, c. s. d. vertical.
Potter & Johnston dbl. table automatic production miller.

GRINDERS.

No. 1 Detroit centerless.
No. 10 Cochrane-Bly auto. bench saw filing machine.
No. 1 Brown & Sharpe, univ., (2).
Type "DE" Hisey-Wolf internal.
Gisholt tool grinder.
No. 14-16 Bealy, wet ring wheel.
6"x18" Landis, pl., single pulley dr.
No. 11 B. & S. plain grinders, (2).
Capital internal grinders, (2).
2" Norton h. d. dry grinder.

HAMMERS.

Coffman post pwr. dr. hammer 25 lbs.
Cady belt drop hammer, 100 lbs.
H. P. Townsend vertical riveting machine.

METAL CUTTING TOOLS & SQUARING SHEARS.

Excelsior power hack saw.
12" Burke metal cold saw.
Higley cold saw.
No. 154 Higley cold saw.

PUNCH PRESSES.

No. 244 Consolidated, geared, dbl. action cam drawing.
No. 83 Bliss, straight side, geared.
No. 3 Niagara inclinable.
P-3 Ferracute straight back.

GEAR CUTTERS.

26" No. 3 Brown & Sharpe auto., (3).
60" Eberhardt, spur.
No. 13 Brown & Sharpe auto., (3).

MISCELLANEOUS.

Boring mche., 23" swing, Star horiz.
Boring mill, 34" Colburn.
Brake, 36" P. S. & W. cornice brake, 20 gauge capacity.
Drills, sgl. sp. upright sens. (2).
Fender equip., Yoder, complete.
Planers, 22"x22"x5' Putnam, 1 hd., (3).
Polishing lathes, City Machine Co.
Splining mch., 2" Pratt & Whitney, double end.

SECOND-HAND MACHINERY

FOR SALE BY

The Sharp Spark Plug Co., - - - **Wellington, Ohio**
Automatics, 1½" multiple spindle Gridley, complete with motor; practically new.

Automatics, 1½" mult. sp. Gridley, without motor; first-class condition.

Automatics, 1½" multiple spindle Acme No. 55; in good condition.

Swaging machine, No. 2 Excelsior; in first-class condition.

FOR SALE BY

Norton Broadway Machinery Co., 238 Broadway, Cincinnati, O.

Boring mill, 60" Niles, 2 heads, old style, friction feed	\$ 800.
Broaching machine, No. 3 La Pointe	375.
Gear cutters, 36" Flather, spur, each	375.
Grinder, 42" Gardner, disc	450.
Grinder, No. 3 Brown & Sharpe universal	850.
Lathe, 20"x8" U. S., nearly new, pan bed, quick change	500.
Lathes, 26"x19" Bullard (2), with motors, 220 d. c., each	1,000.
Miller, No. 2 Hende universal, vertical attachment	675.
Miller, 20"x6½"x17" Oesterlein universal	450.
Planer, 36"x36"x14" Belmer, 4 heads	1,200.
Presses, cast iron (25), 4" to 5" stroke, each	150.
Press, No. 6-A Willard inclinable, nearly new	425.

FOR SALE BY

Tubor, Velick & Co., Inc., - Lake & Desplaines Sts., Chicago, Ill.

Telephone: Monroe 4199

New and Used Machines.

PUNCH PRESSES.

No. 604 Bliss, (4).	No. 35 Niagara.
No. 4 Verdin Kappes, b. g.	No. 15 Torris Wold.
No. 33 Consolidated.	No. 15 Waterbury-F. kick pr., (44).
No. 3 Am. Can. dbl action (2).	

DRILL PRESSES.

20" Canedy-Otto, (20).	Bench drills, with chucks (26).
20" Barnes, (20).	4" radial, Niles.
30" sliding hd. (3), different makes.	4" radial, Mueller.
20" to 30" Silver and Rockford (20).	

MILLING MACHINES.

No. 1B Milwaukee universal.	Bristol millers, plain, (15).
Fox millers, power feed, (15).	

LATHES.

Bench lathes, (20).	18"x8" Sidney.
10"x4" Myers.	18"x10" American, (2).
16"x8" Robinson.	20"x14" LeBlond.
16"x6" Rahn-Carpenter.	22"x16" Wickes.
16"x8" Canedy-Otto.	Low-swing lathes, Fitchburg, (3).
16"x10" Hamilton.	Porter-Cable; Dalton Six, bench;
18"x8" Bradford.	No. 17 LeBlond, q. c.

GRINDERS.

No. 14 Besly, disc, (3).	No. 15 Besly, disc.
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SCREW MACHINES.

No. 3 Smurr & Kamen, p. f. (8).

MISCELLANEOUS.

Gear hobber, No. 3 Barber-Colman.	Shaper, 24" Milwaukee.
Jointers, 12" and 16".	Shear, rotary, 60" Pettingell.
Motors, all sizes, a. c. and d. c.	Shear, 82" Niagara power square.
Paper box stitcher, Latham No. 2, new	Shear, 11" power square.
Paper balers, (100).	Toilet sets, Low-down, 100 sets.
Planer, 26"x26"x8" Cincinnati.	Trucks, 3 lifting.
Planer, 36"x36"x14" Niles.	

Leather belting. Pulleys, shafting and hangers.

SECOND-HAND MACHINERY

FOR SALE BY

The O'Brien Machinery Co.,

113 N. Third St., Philadelphia, Pa.

Bolt cutters, 3" Acme, (2).
 Drill cutter, 1" Acme.
 Drill, Avey Hi-speed sensitive with motor attached.
 Drills, Moline heavy duty hog, (2).
 Drills, Sipp single spindle (3).
 Drill press, 25" Buffalo.
 Drill, 36" Prentiss.
 Gear cutter, 36" Gould & Eberhardt.
 Grinder, 6" x 32" Norton pl. grinder.
 Grinder, No. 1 Norton universal.
 Grinder, No. 2 Norton universal.
 Grinder, No. 2 Acme univ. tool & c.
 Grinder, No. 14 Besly disc, with press.
 Grinders, Wilmarth & Morman hand feed surface grinders, (2).
 Hammer, 40 lbs. Williams-White Yeakley, belt drive.
 Hammer, 650 lbs. Williams-W. Y.
 Lathe, 8" x 106" Fitchburg Lo-Swing.
 Lathe, 16" x 8" Rahn-Larmon.
 Lathe, 18" x 9" Lehman.
 Lathe, 18" x 10" Monarch.
 Lathe, 20" x 9" Lehman.
 Lathe, 20" x 12" Monarch.
 Lathe, 20" x 14" Powell.
 Lathe, 27" x 10" S. & B., heavy duty.
 Lathe, 27" x 18" LeBlond, motor dr.

Miller, No. 25 Hilton plain.
 Miller, No. 24 Fox.
 Nut tapper, 6-sp, 1 1/2" Acme semi-auto.
 Pipe machine, 4" Oster.
 Pipe mch., 4" Oster, motor driven.
 Pipe mch., 4" Jarecki, motor driven.
 Pipe machine, 2" Oster.
 Pipe machine, 8" Curtis & Curtis.
 Planer, 36" x 36" x 12" Powell, 4 hds.
 Planer, 38" x 36" x 12" Powell, 2 hds.
 Planer, 50" x 50" x 18" Betts.
 Presses, Nos. 18, 19 and 20 Bliss.
 Presses, approximately 50, assorted sizes, Waterbury-Farrell Foundry, weights approx. 2,000 to 5,000 lbs.
 Presses, Toledo No. 33 straight sided power, 3 1/2" stroke, (7).
 Riveter, 8" x 8" Vulcan.
 Saw, 6" Nutter & Barnes circular.
 Screw machines, No. 2 Brown & Sharpe, wire feed.
 Shapers, 20" 16" and 14" Holling'h.
 Shapers, 24" 20" and 16" Ohio.
 Turret lathe, No. 64 Bardon & Oliver, wire feed, cabinet base.
 Turret lathes, No. 12 1/2 G Garvin, 2" wire feed capacity (4).

FOR SALE BY

Brownell Machinery Co.,

11-13 Eddy St., Providence, R. I.

ENGINE LATHES.

10" x 4' Young Bros., foot power.
 12" x 5' Shepard.
 14" x 6' Rockford.

19" x 8' Blaisdell.
 21" x 16" Reed.
 24" x 12" LeBlond heavy duty, q. c. g.

MILLING MACHINES.

No. 1-M Potter & Johnston continuous automatic.
 No. 5-C Becker vertical, rotary.
 No. 6 Becker 62" vertical.

No. 2 LeBlond universal.
 No. 1 1/2 Brown & Sharpe universal.
 No. 6 Whitney hand miller.
 No. 1 Brown & Sharpe plain.

BORING MILLS.

No. 1 Beaman & Smith horizontal.
 No. 1 Cleveland horiz., floor type.

54" Bullard rapid production type, vertical.

PLANERS AND SHAPERS.

17" x 17" x 4' Whitcomb.
 22" x 22" x 8' Whitcomb.
 36" x 36" x 13' Betts, 4 heads.
 36" x 36" x 22" Pond, 2 heads.
 48" x 48" x 16" Patch, 4 heads.

15" Potter & Johnston shaper.
 16" Sellow shaper.
 20" Kelly shaper.
 16" Flather, gear box.

PUNCHES AND SHEARS.

34" throat McCabe, single end, 1 1/2 x 1.

50" throat McCabe, single end, 1 1/2 x 1.

BOLT CUTTERS AND PIPE MACHINES.

No. 77 Curtis pipe machine 3".
 No. 304-A Oster pipe machine 4".

No. 96 Curtis pipe machine 6".

HAMMERS.

40 lbs. Bradley cushioned helve.
 50 lbs. Bradley upright helve.
 300 lbs. Baudry Champion.

50 lbs. Standard plain drop.
 800 lbs. Mossberg, automatic drop.

MISCELLANEOUS.

Drill, 3 sp. Reed-Prentice, b. b. sens.
 Drill, 24" Cincinnati, sliding head.
 Keyseater, No. 1 Davis.

Lathes, No. 3 1/2 Stark, bench.
 Planer, 12" Rogers buzz.
 Saw tables, Kidder tilting top.

SECOND-HAND MACHINERY

FOR SALE BY

The Reeve-Fritts Company.

Automatics, No. 7A Potter & J., (2).
Boring machine, Beaman & S. horizontal, motor drive.
Boring mill, 42" Bullard vertical.
Drill, 24" W. E. Gang radial.
Grinder, No. 4 Van Norman int.
Grinder, 36" P. & W. vert. surface.
Lathe, 3x36 Jones & L. turret.
Lathe, 18x10 Bradford, 20" swing, q. c. g. & taper.
Lathe, 26x11 Wickes.

37 So. Desplaines St., Chicago, Ill

Lathe, 26"x12" Bridgeford, q. c. g.
Lathe, 16" Drees Fox Monitor.
Miller, No. 3H LeBlond h. d. plain.
Miller, No. 4 LeBlond h. d. plain.
Motor, 5 h. p., a. c.
Pipe machine, 2" Jarecki No. 7.
Planer, 31x31x14" Powell, 2 heads.
Press, arch, No. 44E Amer. Can.
Screw machine, 13/16" Wells.
Shaper, 12" Smith & M. crank.
Shear, 30" foot square.

FOR SALE BY

J. C. Marr Machinery Co.,

Air compressor, 3x4 and 5x8" vert.
Blowers, Nos. X and Y Garden City.
Blowers, Nos. 3, 6, 8 Buffalo pres.
Bolt cutter, Acme 14", sgl. hd., dies.
Boring mill, 36" Bullard, 1 head.
Boring mill, 36" Bridgeport, 2 heads.
Boring mill, 72" Bickford, 2 heads.
Boring mill, 90" Niles, 2 swivel hds.
Drill, Tempco 1/2" universal, 110 v.
Drill, 20" Rockford, bk. gr., pr. feed.
Drill, 4" Bickford, radial, gear box.
Drill, 26" upright, bk. gr., pwr. feed.
Filer, Oliver die, 110-220 volt.
Grinder, Diamond auto. surface.
Hammer, 100 lb. Little Giant, pwr.
Hoist, 1 ton, spur gr. and trolley.
Lathes, 11"x14" & 13"x15" speed, c.s.

127 Water St., Pittsburgh, Pa.

Lathe, 14"x 6" Carroll-J., q. c. g.
Lathe, 15"x 8" Standard, taper att.
Lathe, 16"x 6" Flatther, taper attach.
Lathe, 16"x6" Cincinnati, semi q. c. g.
Lathe, 18"x8" Bradford, pl. ch. gr.
Lathe, 23"x12" Draper, pl. ch. gear.
Lathe, 24"x16" L. & S., q. c. g., t. att.
Lathe, No. 3 Bardons & O., tur. f. b. g.
Miller, No. 1 Burke hand, vise, stand
Miller, No. 3 B. & S. pl., arbor, c. a.
Planer, 24x24x6" Gray, 1 head, c. s.
Press, No. 58 Bliss reduc'g, 34" str.
Shaper, 16" American, bk. gr. crank.
Shear, Niagara 7", ft. power, squar'g.
Shear, Acme 31" foot power, 18 ga.
Shear, United Engin'g No. 6, lever.
Shear, Niagara alligator, cap. 5x4".

FOR SALE BY

Brown Machinery Co.,

Boring mill, 60" Sellers, 2 heads.
Drill, 30" Gould & Eberhardt.
Drill, 30" Prentice.
Drill, 24" Sibley & Ware.
Drill, 26-spindle Baush.
Drills, 4, 5 & 6 spindle Allen.
Drills, Nos. 1 & 3 Barnes hor. radial.
Gear cutter, 30" Whiton.
Grinder, surface, 1 LaSalle.
Grinder, 14" Besly.
Grinder, No. 2 Oesterlein univ.
Grinder, Woods No. 24 univ.
Hammer, 1200 lb. Chambersburg, double frame steam.
Hammer, 800 lb. Lane, double frame steam.
Lathes, 14", 16", 20", 26" Walcott, d. b. g., q. c. g.
Lathe, 14"x 6" Monarch, d. b. g. q. c. g.
Lathe, 16"x 6" Sidney, q. c. g.
Lathe, 24"x10" Fay & Scott.
Lathe, 26"x12" 10" Wickes, d. b. g., q. c. g., taper attachment.
Miller, 3-B Owen, vert. attachment.
Miller, 1-B Fox horizontal.

2323 N. 9th St., St. Louis, Mo.

Miller, No. 4 Hendey, b. g.
Miller, No. 7-H Becker.
Miller, No. 2 American Lincoln.
Planer, 24"x24"x6" Lodge & Davis.
Presses, Swaine Nos. 57 & 35.
Presses, toggle, Robinson 5' & 10'.
Press, No. 5 Bliss Stiles.
Profilers, two-spindle, Pratt & Whitney, Putnam, Reed-Prentice.
Riveter, air, P-A.
Roll, plate straightening, No. 0 Hilles & Jones.
Saws, band metal, 10x10" Napier.
Screw machine, hand, Smith.
Shaper, 16" Whipp, a. g.
Shapers, 26" & 34" Walcott, motor drive.
Shears, 134 Marshalltown, 4".
Shear, No. 31 Exc. alligator.
Shear, 62" Peerless, 14 ga.
Shear, 52" Niagara, ft. sq.
Stake riveter & punch, No. 3 Hilles & Jones, 5' throat.
Turret lathe, 24" Wysong & Miles.
Turret lathe, 16" Gisholt.

SECOND-HAND MACHINERY

FOR SALE BY

B. C. Allen Machinery Co.,

Blowers, positive, 14" and 2".
Dividing head, 10".
Drill presses 14", 20", 24" and 32".
Drills, radial, 24" and 5".
Hack saw, Racine high speed.
Lathes, 11"x5", 16"x8", 18"x8",
18"x10" and 24"x15".
Lathe, 22/44"x12" McCabe dbl. spdl.

551 W. Monroe St., Chicago, Ill.

Millers, No. 0 Steptoe, No. 25 Becker.
Miller, No. 3 Cincinnati.
Miller, No. 3B Milwaukee, single
pulley drive.
Punch presses, Nos. 1, 2, 3 and 4.
Screw machines, Nos. 1 and 2.
Shapers 14", 16" and 24" crank.
Square shears, 30" foot, 42" power.

Several carloads of other machines. Let us know what you want.

FOR SALE BY

W. P. Little Co.,

1616 Columbus Road, Cleveland, Ohio

LATHES.

14"x 6' American, q. c., t. a.
14"x 6' Porter, c. r.
14"x 6' Bradford.

14"x 6' LeBlond, c. r.
16"x 6' Cincinnati, d. b. g., q. c. g.
26"x 9' Bridgeford, d. b. g., q. c. g.

SHAPERS.

14" Steptoe crank.

16" Barker, back geared, crank.

DRILL PRESSES.

4' Hammond sensitive radial.

24" Aurora b. g., power feed.

PUNCH PRESSES AND SHEARS.

No. 21 Bliss, o. b. i.
No. 6 Waterbury, open back.
No. 24 Stoll, horning.

No. 6 Rockford, straight side, grd.
No. 7 Rockford, straight side, grd.
No. 315 Bliss pwr. squaring shear.

MISCELLANEOUS.

Blower, No. 8 Sturtevant.
Broach, No. 3-A Lapointe.
Furnace, Frankfort, 16" door.
Grinder, Saxon surface, tbl. 12"x48".

Keyseater, No. 1 Baker.
Screw mche., No. 4 B. & O.
Slotter, 8".
Turret, No. 2 W. & S., air chuck.

FOR SALE BY

E. L. Easley Machinery Co., 551-557 Washington Blvd., Chicago, Ill.

BORING MILLS.

24" Bullard vertical.
36" Bullard vertical, 1 turret head.
42" Bullard vertical, 2 heads, (2).
42" Gisholt vertical, 2 heads, (2).
60" Bullard vertical, 2 heads.

60" Colburn vertical, 2 heads.
60" Bickford vertical, 2 heads.
60" Betts vertical, 2 heads.
96" King vertical, 2 heads.

GEAR CUTTERS AND HOBBSERS.

No. 1 1/2 Bilton automatic, 4" cap.
No. 3 Cincinnati auto. spur, 26"x10".
No. 3 Brown & S. auto., 36"x8".
30"x10" Flather auto. spur.
No. 3 Adams-Farw. auto., (2).

No. 4 Adams-Farw. automatic.
52" Gould & E. auto. No. 36-H.
12" Gleason automatic.
54" Gleason bevel.

MILLERS.

No. 8 Lees-Bradner thread.

PLANERS.

36"x36"x12' Wood & Powell.
42"x42"x10' Gray, 1 head.

62"x56"x26' Gray, 2 heads.
48"x48"x20' Niles-B-P., 2 heads.

SCREW MACHINES.

1/2", 2" & 3" Cleveland automatic.

1/2" & 1" National Acme automatic.

MISCELLANEOUS.

Balancing machine, Norton, crank-
shaft, 1/2 h. p., 110 v. mtr. & rheostat.
Cutting-off mch., 4" Hurlbut & R.
Jointer, 26" Williamsport.
Shaper, 28" Rockford, power cross
and vertical feed.

Screw driving mche., No. 1 Reynolds,
round or flat head wood or machine
screws up to No. 12.
Slotter, 26" Niles gd.
Sprue cutter, No. 131-A Toledo deep
gap.

"At Your Command with Second Hand"

LATHES

- 21' triple geared face plate drive Pit
Lathe for slotting, facing & boring.
60"x30" Fifield, face plate dr., 27" cent.
62"x22" Putnam, triple grd., internal
face plate drive, 13' centers.
62" Pulley, triple grd., face plate dr.
36"x14' 6" New Haven.
36"x20" Putnam, triple geared, face
plate drive.
30"x12" Niles-Bement-Pond, geared
head, heavy duty, quick change.
28"—48"x12 Harrington Gap Lathe.
24"x14' Prentice, geared friction
head, quick change.

VERTICAL BORING MILLS

- 120" Niles, 2 swivel heads.
84" Bickford, 2 swivel heads.
90" Niles-Bement-Pond, 2 sw. hds.
72" Niles, 2 swivel heads.
64" Poole, 2 swivel heads, thread
cutting.
44" Niles, 1 swivel hd., 1 tur. head.
42" Putnam carwheel, hub facing
attachment.
32" Rogers, swivel turret head, uni-
versal jaws.

HORIZONTAL BORING MILLS

- Bement cylinder, 8" bar.
Barrett No. 2 cylinder, 5" bar.
Beaman & Smith No. 2 floor boring,
drill and milling machine, 4" bar.
Niles boring drilling mche., 4" bar.
Betts boring drilling mche., 5" bar.
Bement bor. drilling mche., 3 1/2" bar.
Newark bor. drilling mche., 3" bar.
Bement bor. drilling mche., 3" bar.
Bement bor. drilling mche., 2 1/2" bar.
Barnes drill'g tap. mch., 3 3/16" bar.
Underwood type 4 1/2" bar. floor plate
8"x9".

PUNCHES, SHEARS, ETC.

- Pels Beam Shear, cap. 15" I beams.
Quickwork Rotary Shear, 48" throat,
4" capacity.
Stoll 16" Squar'g Shear, No. 16 ga.
Stoll 11" Squar'g Shear, No. 16 gauge.

PUNCHES, SHEARS, Etc.—Cont.

- "B" Long & Allstatter single end
shear, 18" throat, 2 1/2" rounds.
Hilles & Jones angle shear, capa-
city 6x8 1/2"
No. 121 Toledo Boiler Maker Punch-
ing & Riveting Machine.
No. 6 Beatty S. E. Punch, 25"
Throat, double gap.
No. 7 Beatty S. E. Punch 15" throat.
1" Acme Hot Nut Punching Mche.

PRESSES

- No. 4 A Bliss, adjustable bed,
4" stroke, weight 5800 lbs.
DG 5 Ferracute geared, 3" stroke
weight 8700 lbs.
No. 60 1/2 Bliss, rack and pinion reduc-
ing, adjustable stroke 4" to 42",
weight 12,500 lbs. (3).
No. 666 Toledo knuckle joint, 2 1/2"
stroke, 1000 tons pressure, weight
80,000 lbs. (2).
No. 857 Toledo rack and pinion re-
ducing, adjustable stroke 5" to 40".
No. 856 Toledo rack and pinion re-
ducing, adjust. stroke, 5" to 36" (2).
No. 2 1/2 E. J. Manville double acting,
stroke slide 4", stroke plunger 1 1/2".
No. 10 1/2 V. & O. dbl. acting, stroke
slide 1", stroke plunger 1 1/2" (5).
NEW No. 34 Excelsior 225 ton Hy-
draulic Tire Applying Press (2).

PLANERS

- 96"x96"x37' Planer, 4 heads.
14' Hilles & Jones Plate Planer.
72"x72"x14' Pond, 4 heads.
72"x70"x14' Sellers, 3 heads.
48"x48"x14' Patch, 4 hds., latest type.
42"x42"x14' Pond, 4 heads.
32"x36"x20" Woodward Powell, 2 hds.
36"x36"x12" Bickett, hvy. duty, 2 hds.
36"x36"x12" Bickett, hvy. duty, 1 hd.
16"x16"x42" Walter Bros., 1 head.
Two 28" Newton Pl. index centers.

NEW DOUBLE LEATHER BELTING

- 5" center stock.....\$.84 per ft.
10" center stock.....1.68 per ft.

New York Machinery Exchange
50 Church Street, NEW YORK

2 BIG LATHES

Niles-Bement-Pond Lathe--"Modern Type"--92" sw., 50' bed, 38' between centers, motor traverse carriage and motor shelf for geared Motor drive on head, inc. motor & electric equipment. Length front bearing, 26", Spindle diameter, 18", weight 150,000 lbs.

POND MCH. TOOL CO'S T. G. & Int. Grd. Face Plate, Double Carr. Forge Lathe, 72" sw., 60 ft. bed, 45 ft. centers. Direct connected motor drive with 2 indep. carriages, motor and controllers.

LATHES

- 54"x21' Pond.
- 50"x14' American.
- 36"x14' Bridgeford, geared head.
- 28"x12' Boyle & Emmes, qck. chg.
- 26"x16' Bradford, motor driven.
- 26"x14' Niles-B.-P., quick change.
- 26"x10' Bridgeford, quick change.
- 24"x12' Schumacher & Boyle, q. ch.
- 21"x 8' McCabe, q. c.
- 18"x10' McCabe, q. c.
- 16"x 8' Lodge & Shipley, q. c.
- 34"x60' Fitchburg "Lo-Swing".

McCABE 2-in-1 DOUBLE SPINDLE LATHES

- 32/54" swing 36' bed, taper attach. arranged for motor drive.

- 26/48" swing 26' bed, latest type, slightly used, guar. good as new.

TURRET LATHES & SCREW MCHES.

- 28" swing, Pond, rigid type.
- 24" swing, Gisholt, motor driven.
- 21" swing, Gisholt, gap.
- 21" swing, Gisholt, 3/4" hole.
- 3x36" Jones & Lamson, grd. hd.
- 2x24" Jones & Lamson, grd. hd.

BORING MILLS.

- 10-16' Betts, double head.
- 54" Niles, single head.
- 48" "Gisholt," double head.
- 42" Bullard, double head.
- 30" Bullard, turret head.

PLANERS

- 54"x60"x30' Pond, 4 hds., motor dr.
- 60"x60"x17' Sellers, 3 heads.
- 48"x48"x18' Pond, 2 heads.
- 48"x48"x14' Sellers, 3 heads.
- 42"x36"x12' Gray, 2 heads.
- 30"x30"x 6' Cincinnati, 1 hd., latest.
- 30"x30"x 6' Gray, 1 head.

BENDING ROLLS

- 10' 2" McCabe drop-end, balance bar type (motor or belt drive).

SLOTTERS

- 24" Niles-Bement-Pond (like new), complete with motor.
- 18" Putnam, motor drive.
- 14" Sellers.

GEAR CUTTERS

- 22" Gleason, bevel gear.
- 30" Gould & E., spur and bevel.
- 36" Fellows gear shaper.

RADIAL DRILLS

- 4' Fosdick, plain.
- 4' Carlton, speed box.
- 3' Carlton, speedy-sensitive.
- 3' Fosdick, plain.
- 2 1/2' Carlton, speed box.

MILLING MACHINES

- No. 3B Milwaukee universal.
- No. 5 B. & S. vert., circular attach.
- No. 2 Cincinnati, vertical.
- No. 3 Cin'ti, plain, table 45x12".
- No. 22 Becker Brainerd, tbl. 48x14".
- Newton, 60x12" horizontal.
- No. 5 Hendey, q. c., Mfrs. style.

PUNCHES AND SHEARS

- 60", No. 6 Hilles & Jones horizontal, arranged for motor drive.
- 50" New McCabe.
- No. 3 Mesta, grd. alligator, m. d.
- 18" L. & A., guillotine.
- 36" No. 1 Long & Allstatler, dbl. end.

PRESSES

- No. 76 1/2 Bliss, trimming.

GRINDERS

- Bridgeport, 60x12", takes 36" bet. centers, Plain Roll Grinder.
- Landis, univ., 10" sw. takes 30" cent.
- Iroquois univ., 12" sw., 36" centers.

SHAPERS

- 28" Smith & Mills, single pulley drv.
- 24" Gould & Eberhardt.
- 16" Smith & Mills plain.

HAMMERS

- 40,000 lb. Chambersburg, dbl. frame, steam.
- 24,000 lb. N. B. Pond, dbl. frame, str.
- 6000 lb. N. B. Pond, dbl. frame, steam.
- 4000 lb. Chambersburg, steam drop.
- 3000 lb. Chambersburg, steam drop.
- 2700 lb. N. B. Pond, double frame, forging.
- 2500 lb. Chambersburg, steam drop.
- 2000 lb. Chambersburg, dbl. frame, forging.
- 1500 lb. Chambersburg, steam drop.
- 1100 lb. Bement, single frame.
- 1000 lb. Toledo, friction board drop.
- 200 lb. Bradley compact.

TESTING MACHINES

- 100,000 lb. Timius-Olson tensile stnht.
- 100,000 lb. Riehle Bros. tensile stnht.

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By Order of Court

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Prices Very Much Reduced

BORING MILLS

- | | |
|---|---|
| 76" Betts, heavy modern. | 3" Betts horizontal, knee type. |
| 60" Bickford, standard, 2 heads, low price. | No. 31 Rochester, horiz., floor type, motor drive, 3/38" bar. |
| 6-24" Bullard vertical turret. | 36" Bullard vert. turret. |

DRILLS

- | | |
|-------------------------------------|---------------------------------------|
| 8" Niles Plain Radial. | 3 and 4 spindle Barnes gang. |
| 6" Bickford, Semi-Universal Radial. | 2 spindle Foote-Burt, hvy. rail type. |
| 4" Gang, gear box drive. | 6 spindle Rockford, automatic feed. |
| 6 spindle Baush, 1" capacity. | 6 spindle Allen sensitive. |
| 24" Barnes, all geared. | |

LATHES

- | | |
|--------------------------------------|--|
| 52"x22" New Haven, belt drive. | 30"x12" Johnson, t. g., low price. |
| 38"x30" New Haven, very cheap. | 26"x12" Putnam, q. c., d. b. g. |
| 36"x21" Double end lathe, t. g. | 20"x12" Hamilton, rais'g blocks to 30. |
| 32"x14" Fitchburg, 3 s. c., d. b. g. | 20"x 6" Lodge & Shipley geared. |
| 29"x14" Fitchburg, 3 s. c., d. b. g. | 18"x 8" Morris, q. c., d. b. g. |

MILLING MACHINES

- | | |
|----------------------------------|--------------------------------------|
| No. 5C Becker Verticals, new. | No. 25 Becker plain. |
| No. 3 LeBlond, plain, high duty. | No. 2 Hendey Norton plain. |
| No. 2 Kempsmith universal. | No. 1 1/2 Hendey Norton universal. |
| 50"x8" Ingersoll slab. | Garvin No. 15 vertical, planer type. |

PLANERS

- | | |
|--|---|
| 84"x84"x13" Sellers, 3 hds., belt dr. | 48"x48"x16" Bement-Miles, 4 heads, belt driven. |
| 48"x48"x14" Powell, 4 heads, reversible motor drive, complete with electrical equipment. | 36"x36"x18" Pease, 2 heads. |
| 36"x36"x12" Niles-B.-P., 3 heads. | 30"x30"x10" Flather, 2 hds., belt dr. |
| | 30"x30"x 6" Gray, 3 heads. |

SHAPERS

- | | |
|-----------------------|-------------|
| 24" Juengst geared. | 20" Hendey. |
| 16" Ohio back geared. | 14" Hendey. |

SLOTTERS

- | | |
|-----------------------|------------------------------|
| 15"-18" Dill, new. | 30" Bullard draw-cut. |
| 16" Newton, like new. | 10" New Haven. |
| 12" Betts. | All slotters very low price. |

MISCELLANEOUS

- | | |
|--|------------------------------------|
| No. 26 Buffalo Armor Plate Shear, 1/2" cap., new, cheap. | 60" Springfield Face Grinder, new. |
| 2 1/2 to 8" Curtis Pipe Machine. | 20" Greenlee Flat Turret Lathes. |

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LATHES

9" to 13" Barnes, h. s., cp. r., new.
10"x 5' Summit, nearly new (2).
13-15-16 and 18 O. & S., h.s., c.r., new.
16"x 6' Monarch, dbl. bk. gr.

18"x 8' Monarch, q. c., d. b. g.
20"x 10' Prentice, taper.
25"x 14' Schumacher & Boye.
8"x 60' Fitchburg Lo-Swing.

TURRET LATHES and SCREW MACHINES

24" Steidle, 64" hol. spld., grd. hd.
1 1/2" Tilted turret hand screw mche.
1" and 1 1/2" Mulholland.

2x24 & 3x36 J. & L., dbl. equipment.
No. 2 Warner & Swasey hol. hex.
Nos. 52 and 56 National Acme.

SHAPERS

14" Niles, traveling head.
14" Steptoe, crank.
16" Springfield, crank, back grd.

16" & 24" Barker, b. g. crank.
24" Walcott, geared.
20" Smith & Mills, geared.

PLANERS

24x24x 6' Gray.
24x24x 6' Pease.
36"x36"x12' Niles.
44x44x12' Pond, 4 heads.
48x48x16' Bement-Miles, 2 heads.

54x54x16' Sellers, 4 heads.
60x60x17' Betts, 2 heads.
60x60x20' Sellers, 4 heads.
66x66x20' New Haven, 2 heads.
84x84x32' Putnam, 4 heads.

PRESSES

No. 18 Bliss, open back inclinable.
No. 35 Niagara, Stiles type, (2).

3-A, 4-A, 5-A and 6-A Willard.
Emco, bench, for radio parts.

DRILLS and RADIALS

3' Morris plain, gear box drive.
3 1/2' Canedy-Otto plain, new.
Sensitive 1, 2, 3, 4 and 6 spindle.

24", 26", 28" and 32", sliding head.
26" Barnes all geared, camel back.
Avey High Speed, bench (2).

**New Standard Makes 20" Drills, each \$109.50
Motors, 1/2 to 50 H. P., 3 ph., 220 v., G. E., New**

MILLING MACHINES

No. 25 Becker plain, (3).
Ames Lincoln type, 10"x40" table.
No. 1 Kempsmith universal.
No. 3 Brainard, 30x7 table.

No. 1 1/2 B. & S. plain.
No. 2 H Brown & Sharpe plain.
Briggs type "A" high duty, 24x8 table.
No. 32 Kempsmith Lincoln type, (3).

GRINDERS

Nos. 1, 3 & 78 W. & M. surface.
10x24 Norton plain.
No. 2 W. & P. 10x30 universal.
12x36 Cincinnati universal.

36" and 66" Yates plate.
6x32 Norton, plain.
Capital internal, new, 2"x2".
6x30 W. & P. plain.

MISCELLANEOUS

Band saws, metal, Klemm, (2).
Bending rolls, 8', for 3" plate.
Boring mill, 12', 2 swivel heads.
Boring mill, Bullard 34" turret hd.
Brake, 8' hand, 18 gauge.
Cold saw, Burr, 3" capacity.
Compressors, 9x8 and 12x10, new.
Etching machine.
Gear cutter, Whiton 36"x9 1/2" face.
Gear millers, Bilton No. 1, (5).
Hammers, 40 lb. Bradley, helve, (2).
Hammer, 150 lb. Standard drop.

Hammer, No. 2 Pettingell, 33" thr. t.
Oil separator, Springfield.
Pipe machines, 2", 4", 6" & 12".
Pumps, Gould triplex, 6 1/2"x8" & 7x8".
Punch & shear 1/2" by 1/2", 10" throat.
Pyrometer, Brown 20000, 2-way.
Riveter, high speed, 1/2" capacity.
Scalers, Shore, (2).
Shear, 5' Robinson, for 10 gauge.
Shear, No. 20 Quickwork, 30" throat.
Shear, 52" Niagara, 18 gauge.
Tapping mche., 1/2" Rickert-Shafer.

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OSBORNE & SEXTON
MACHINERY COMPANY
COLUMBUS OHIO**

Priced LOW for Quick Sale

PUNCHES AND SHEARS

Southwark heavy combination punch and shear, 48" throat.
Cleveland Model E F combination punch and shear, 48" throat.
Geo. Whiting No. 8 sgl. end power punches or shears, 48" throat. (2).
Long & Allstatter No. 2 combination punch and shear, 33" throat.
Southwark heavy combination power punch, 48" throat.
Long & Allstatter comb. angle shear, cap. to shear 5x5x1½" angles.
Rock River horizontal punch, 8" throat, weight 12,000 lbs.
All the above punches, shears, etc., arranged for motor dr. standard
a.c. 440 volt, 3 phase, 60 cycle motors. Price with or without motors.

LATHES AND PLANERS

R. K. LeBlond 25"x24" screw cutting lathes, like new, q. c. g., compound rest, taper attach., dbl. back grd., full standard equip., (2).
Gleason 30"x20" lathe, solid spdl., c.r., fitted with 28" ck. & full equip.
Cleveland 30"x30"x8' open side planer, one head on rail, one side hd.
Other good lathes, drills, grinders, power saws.

BENDING ROLLS AND PLATE PLANNER

Hilles & Jones 20' plate bending rolls, steam driven, slip roll type,
upper roll 20" diameter, lower rolls 13½", weight about 50 tons.
Niles 20' plate planer, belt driven, in excellent condition.

MISCELLANEOUS

Bolt cutters, Greenfield Little Giant, ½ to 1", (5).
Hammer, steam, Hement 1500 lb. single frame, 90% new.
Hammer, Bradley 300 lb. upright helve, 80% new.
Pipe machines, 6" Victor Loew portable; 8" Jarecki, belt driven.

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LOW-ENOUGH PRICES on all these Tools to induce immediate purchase—

ENGINE LATHES

- 120"x40" N.-B.-P., ar. for motor dr.
- 90"x20" Putnam.
- 60"x40" Niles-B.-P., motor dr., with motors, including rapid traverse to carriage.
- 60"x26" Putnam.
- 60"x22" Putnam.
- 52"x22" New Haven.
- 48"x28" Niles.
- 48"x26" Pond Machine Tool Co.
- 48"x20" Putnam style.
- 42"x32" Pond, belt-driven, rapid traverse to carriage.
- 42"x20" Pond.
- 42"x17" Putnam Machine Co.
- 38"x30" New Haven.
- 36"x16" Putnam.
- 34"x12" Putnam.
- 30"x38" Lodge & Shipley, single pulley, 2 heads.
- 30"x19" Johnson.
- 30"x18" Pond, taper attachment.
- 30"x18" Putnam.
- 30"x12" Johnson, d. b. g.
- 28"x14" Fitchburg.
- 26"x14" Schumacher & Boye.
- 26"x12" Putnam, semi-quick change.
- 25"x12" Bradford.
- 24"x12" Schumacher & Boye q. c.
- 24"x12" Greaves & Klusman, pattern makers.
- 24"x10" Putnam.
- 20"x12" Hamilton, blocks to 30".
- 2—20"x10" Bradford.
- 20"x 8" Bradford.
- 20"x 8" Hamilton, arranged for mtr.
- 20"x 8" Hamilton, turret on carriage.
- 18"x10" Lodge & Shipley.
- 18"x 8" Lodge & S., single pulley.
- 18"x 8" Lodge & Shipley, cone dr.
- 18"x 6" Hamilton, arranged for mtr.
- 17"x 8" LeBlond, arranged for mtr.
- 40—Smaller lathes down to 12" swing, various lengths of bed.
- MCCABE "2-IN-1" DBL. SPDL.**
- 38/60" swing, 28' bed, 20' centers, taper att., chuck and jaws.
- 26/48" swing, 20' bed, 24' centers, plain plate.
- 26/48" swing, 16' bed, 10' centers, plain plate.
- 26/48" swing, 12' bed, 8' centers, geared plate.

TURRET LATHES

- 4—No. 6 Warner & Swasey.
- 3—No. 4 Warner & Swasey.
- 1—No. 2 Warner & Swasey.
- 2—No. 6-A Potter & Johnston, A. C. drive, including Motors.
- 1—No. 7-A Potter & Johnston, A. C. drive, including Motors.
- 1—No. 5-A Potter & Johnston, belt driven.
- 1—38" Swing (gap), Bullard, 2" hollow-spindle.
- 1—30" swing Gisholt, taper.
- 1—26" swing Bullard, style "H."
- 1—24" swing Gisholt, taper.
- 1—24" swing Steinle, 64" hole in spindle, geared head.
- 1—3x36" Jones & Lamson, for chuck work, two spindle.
- 2—2x24" Jones & Lamson.
- 1—28" hollow spindle, Greenlee Flat Turret Lathe.
- 1—Fox Monitor Springfield.

SCREW MACHINES

- 3—1" Hartford automatic.
- 1—1 1/2" Hartford automatic.
- 2—No. 6 Brown & Sharpe automatic.
- 1—2 1/2" Cleveland automatic.
- 1—3 1/2" Cleveland automatic.
- 1—2 1/2" Gridley automatic.
- 1—4 spindle Gridley auto., 2 1/2" cap.

PLANERS

- 144"x120"x30" Niles-B.-P., 4 heads.
- 84"x84"x13" Sellers, 4 heads.
- 72"x72"x28" Niles Tool Wks., 4 hds.
- 60"x60"x24" Niles-B.-P. 4 heads.
- 60"x60"x12" G. A. Gray, 4 heads.
- 56"x56"x10" G. A. Gray, 4 heads.
- 48"x48"x22" N.-B.-P., 4 heads.
- 48"x48"x16" Bement-Miles, 4 heads.
- 48"x48"x14" Powell, 4 heads.
- 48"x48"x12" Hamilton, 4 heads.
- 42"x42"x12" Pond, 2 heads.
- 36"x36"x12" Niles-Bement-P., 3 hds.
- 36"x36"x12" Niles, 2 heads.
- 36"x36"x10" Putnam, 1 head.
- 36"x36"x12" Detrick & Harvey 1 rail, 1 side head.
- 30"x30"x10" Bement Miles, 2 hds.
- 30"x30"x 8" Pond, 1 head.
- 30"x30"x 6" G. A. Gray, 1 head.
- 27"x27"x 8" Woodward & P., 1 hd.
- 24"x24"x 6" G. A. Gray, 1 head.

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GRINDERS

Diamond 6"x45" Plain External Cylindrical Grinder.
Brown & Sharpe 8"x16" Universal External Cylindrical Grinder.
Landis 16x60 Univ. Extern'l Grinder.
Fitchburg 12"x36" Plain External Cylindrical Grinder.

DRILL PRESSES

Footo-Burt Vertical 2 spindle adjustable Heavy Model 3" capacity also adapted for cylinder boring.
Footo-Burt Vertical 4 spindle—same.
Bickford Plain Radial with tapping attachment 5' arm.
Niles Bement Pond Co. Plain Radial 6' arm with tapping attachment.

VERTICAL BORING and TURNING MILL

72" Colburn with 2 swivel heads.

PUNCH PRESSES

Ferracute D. G. G. No. 55 Straight Sided, Single Action, Dbl. Back Grd. Punch Press, Friction Clutch Drive. Distance between Uprights 25"; Area of Bed, R to L 24", F to B 31"; Stroke of Slide 16"; Ram Pressure 70 tons. Weight about 16,000 lbs. Condition 95% new.
Ferracute D. G. G. No. 56—same. Distance between Uprights, 32"; Area of Bed, R to L 30"; F to B 36"; Stroke of Slide, 16"; Ram Pressure 100 tons. Weight about 22,000 lbs. Condition 95% new.
Ferracute No. E57 Toggle or Embossing D. G. G. Distance between Uprights 36"; Area of Bed, 36x36; Stroke, 24"; Ram Pressure 1500 tons. Weight (each) about 140,000 lbs. (2 machines). Condition 99% new.

ENGINE LATHES, TRIPLE GRD., SCREW CUTTING

96x37 Fifeild, 27' centers
68x40 Pond, 30' centers
60x40 Fifeild, 30' centers
with 2 carriages on bed, with compound rests, hollow spindle. (2 Machines). Nearly new.

ENGINE LATHES, TRIPLE GRD., SCREW CUTTING — Continued

36x32 Amer. Tool Wks., 25' centers with 2 carriages on bed, with compound rests, have power angular feed, quick change. Nearly new. (3 Machines).
36x32 LeBlond, 25' centers with carriages on bed, compound rests, taper attachment, quick change. Nearly new. (2 Mchs.)

ENGINE LATHES (NOT SCREW CUTTING) PLAIN TURNING

36x27 Niles-Bement-P., 21' centers Heavy duty, all geared head.
36x33 Niles-Bement-P., 27' centers Heavy duty, all geared head.
26" Davis Furber, Pulley Turning.
18x8 Fulton Plain Turning, B. G.
48" Niles Double Head Car Wheel Turning Lathe, with 2 carriages.

MILLING MACHINES

Ingersoll 24"x24"x12' Table Horizontal Slab Milling Machines with INCLINED ADJUSTABLE RAIL—(Brand New) (6 machines) —Weight about 25,000 lbs.
HENDRY No. 4 Milling Machines Table 9"x24" (Automatic Fd. 20") 250 Machines.
BECKER No. 7 H. Milling Machines, Table 9"x29", (Automatic Feed 20") 250 Machines.
PEDRICK & AYER No. 3 Univ. Milling Mche. (Automatic Feeds 34"x10"x18"). Table 52"x14".
Whitney No. 6 Hand Milling Mchs. Table 20"x4" (Feeds 16"x6"x13") 10 Machines.

VERTICAL MILLING MACHINES

BECKER No. 5 C Latest Improved Model Single Pulley Drive (All Geared Speeds) Table 56x14" (Auto. Fds. 54x16x14") 2 Machines
BECKER No. 5 Table 48"x13" (Auto. Feeds 40"x15"x12").
NEWTON No. 1 with Automatic Revolving Rotary Table 22" dia. (Auto. Fds. 20"x12"x12") Swings work 33" dia.
BROWN & SHARPE No. 3 Table 60"x16" (Auto. Fds. 34"x16"x14").

Write for a free copy of Bulletin No. 205 describing our complete stocks of Machine Tools.

Grand Rapids Specials

Broaching machine, No. 4 Burr.
Broaching machine, No. 2 J. N.
LaPointe.

Compressor, 6x6 Curtis, dbl. cyl.
Cut-off mch., No. 4 Nutter-B.
Drill, 6-sp, 14" Rockford gang.
Grinder, No. 6 Bryant, chuck'g.
Hack saw, No. 7 Racine.
Hammer, H. C. Smith auto.
Lathe, 12" Hendey, tool room.
Lathe, 9x21½ Sundstrand Mfg.
Lathe, 9x12 Porter-Cable.
Lathe, 16x7 Oliver, q. c. g.
Lathe, 18x8 Bradford, q. c. g.
Miller, No. 2-H Becker vert.
Miller, 4" P. & W. spline.
Planer, 36"x30"x8" Pond.

Press, No. 34 Consolidated, arch.
Press, No. 74 Consolidated.
Radial drill, 3' Dreses.
Radial drill, 3' Fosdick.
Riveter, ½" Shuster.
Sand blast, Type A-6 Pangborn.
Scrap compress, No. 10 Econo-
my standard.
Shear, squaring, 98" Ohl, 16 ga.
Shear, 10' Bertsch, 11 gauge.
Turret lathe, 3x36, J. & L.
Turret lathe, 2x24, J. & L.
Turret lathe, No. 3 B. & O.
Turret lathe, No. 5 Foster.
Turret lathe, 14" Warner & S.
Wire weaving mch., S. & K.

McMullen Machinery Company

"Everything in Shop Equipment"

Grand Rapids, Mich.

MILLING MACHINES—New

- 3—No. 1½ Rockford univ., cone type, cap. 25x7½x18.
- 2—No. 2½ Rockford univ., cone type, cap. 34x9x18.
- 1—No. 2½ Rockford univ., high pwr., grd., sgl. pulley dr., cap 24x9x18.
- 2—No. 1½ American plain and universal, cone type, cap. 25x9x19.
- 1—No. 0 Bickett vertical Mill and Profiler.

MILLING MACHINES—Used

- 1—No. 1 Cincinnati plain, m. d.
- 1—No. 2 Becker plain, m. d.
- 1—No. 4 Cincinnati univ., m. d.
- 6—No. 32 Kempsmith, Lincoln.
- 6—P. & W. 12" Auto. Mills.
- 1—Ingersoll slab, 20"x20"x8'.
- 1—Nos. 1 & 2 Newton keyseat mills, m. d.
- 3—No. 3½ Fox, power and hand, table 7x27½'.

MISCELLANEOUS

- 3—16"x8' Sidney Lathes, q. c., d. b. g.
- 1—37" Niles Boring Mill, 2 heads
- 1—50" Sellers Car Wheel Borer.
- 1—82" Bertsch Multiple Punch.
- 3—Quickwork Rotary Shear, cap. up to 1".
- 2—Hendey Shapers, 15" and 20".
- 2—Thompson Universal Grinders 10x36".
- 12—Gisholts, 12" and 24" Turret Lathes.
- 4—Multiple Drills, 10 to 24 spindles.
- 14—Screw Machines, ½ to 3½" cap.
- 4—Radial Drills, 3½, 4' and 5' plain and universal.
- 5—No. 2 Oakley Universal Grinder, 10x20.
- 1—Used No. 3 Sidney Inclined Press, weight 2600 lbs.
- 1—Used 10x24" Landis Plain Grinder.

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LATHES.

- 1-45"x24" Pond, triple gd.
- 3-36"x42" LeBlond, q. c. g.
- 15-36"x30" Pittsburgh, q. c. g.
- 1-36"x19" Johnson, triple geared.
- 6-30"x11" American, geared head.
- 15-each 28"x9", 10", 12", 14", 16", 18" and 20" Bridgeford, q. c. g.
- 3-20"x10" Lodge & Shipley, q. c. g.
- 89-20"x 8", 12" & 16" Amer., q. c. g.
- 1-18"x 8" Boye & Emmes, q. c. g.
- 1-18"x 8" Lodge & Shipley, q. c. g.
- 3-18"x 9" Lehmann, q. c. g.
- 7-17"x 6" LeBlond mfg. auto.
- 2-16"x 6" Bradford, q. c. g.
- 1-15"x 6" Sidney, q. c. g.
- 1-14"x 6" Bradford.
- 1-13"x 5" Willard.

DRILLING MACHINES.

- 1-each 3', 3½', 4' and 6' Western Radials.
- 2-No. 11 Pratt & Whitney mult. sp.
- 2-No. 11 Natco multiple spindle.
- 21-3, 4 & 6 spindle Allen, b. b.
- 1 each 1 & 2 spdl. Henry & Wright.
- 6-20" Barnes plain and b. g.
- 6-20" Rockford plain and b. g.
- 6-22" Barnes, sliding head.
- 1-26" Barnes "Camel Back".
- 1-25" Cincinnati, tapp. att.
- 1-28" Cincinnati.
- 1-34" Barnes.
- 1-36" Cincinnati, tapp. att.
- 1-40" Cincinnati.
- 1-No. 1 Baker.

GEAR CUTTERS & HOBBSERS.

- 3-18" Gould & Eberhardt.
- 13-No. 1 Farwell.
- 2-Nos. 3-26 & 3-36 B. & S.
- 6-No. 6 Fellows.
- 1-No. 6 12 Fellows.
- 1-36" Gleason bevel.

CRANK SHAPERS.

- 1-15" Potter & Johnston.
- 3-each 16" and 20" Steptoe, b. g.
- 3-ea. 16", 20" & 24" Walcott, b. g.

VERTICAL BORING MILLS.

- 15-24" Bullard New Era vertical.
- 1-30" Gisholt vertical.
- 1-36" Bullard vertical.
- 1-42" Gisholt vertical.
- 1-37"-44" Colburn vertical.
- 1-48" Colburn vertical.
- 1-60" Bullard vertical.
- 1-72" Betts vertical.
- 3-72" Cincinnati.
- 1-10" Niles vertical.
- 1-No. 3-A universal horizontal.
- 1-No. 5 Defiance horizontal.
- 3-Foote-Burt horizontal.
- 1-Cleveland horizontal.

MILLERS.

- 2-No. 1 Brown & Sharpe plain.
- 1-No. 1 Brown & Sharpe univ.
- 1-No. 1½ Cincinnati univ.
- 15-Nos. 2 & 3 Kempsmith plain.
- 2-No. 2A Brown & Sharpe univ.
- 4-No. 4 Cincinnati plain.
- 1-No. 4 Cinti. univ. hi-power.
- 1-No. 3 Brown & Sharpe vert.
- 1-No. 2½B Milwaukee vert.
- 1-No. 5 Becker vert.

PLANERS.

- 1-96"x72"x20" Bement, 4 heads.
- 1-60"x48"x10" Gray, spiral geared.
- 1-36"x36"x10" Beckett.
- 1-30"x30"x10" Woodward & P.
- 1-24"x24"x12" Whitcomb.

TURRET LATHES.

- 1-24" Foster.
- 2-3x36" Jones & Lamson.
- 1-2" Brown & Sharpe.
- 3-14" Warner & Swasey.
- 5-14" Foster No. 3.
- 5-1" Foster No. 2.
- 8-1" Warner & Swasey.
- 8-1" Pratt & Whitney.
- 4-24" Gisholts.

GRINDERS.

- 46-4"x20" to 20"x96" Landis, Brown & Sharpe, Cincinnati, Modern and Norton plain and universal.

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Air Guns

Powell Co., Wm., Cincinnati

Arbors, Solid

Nicholson & Co., W. H., Wilkes-Barre, Pa.

Automatics

National Acme Company, Cleveland
New Britain Machine Co., New Britain, Conn.

Balancing Ways

Anderson Bros. Mfg. Co., Rockford, Ill.

Ball Bearings

Abbott Ball Co., Hartford, Conn.

Balls, Brass, Bronze and Steel

Abbott Ball Co., Hartford, Conn.

Band Saw Machines, for Metal

Armstrong-Blum Mfg. Co., 341 N. Francisco Ave., Chicago

Barrels, Tumbling

Abbott Ball Co., Hartford, Conn.
Scully-Jones & Co., Ry. Exch. Bldg., Chicago

Bearings, Babbitted

Bunting Brass & Bronze Co., Toledo, O.
Johnson Bronze Co., New Castle, Pa.

Bench Legs, Steel

New Britain Mche. Co., New Britain, Conn.

Bending Machines, Hand and Power

Armstrong-Blum Mfg. Co., 341 N. Francisco Ave., Chicago
Hendley & Whittemore Co., Beloit, Wis.
Lewthwaite Mche. Co., T. H. 417 E. 31st., N. Y.
Lourie Mfg. Co., Springfield, Ill.
Pedrick Tool & Machine Co., Philadelphia

Boring Bars

Pedrick Tool & Machine Co., Philadelphia

Boring Bars, Cylinder

Pedrick Tool & Machine Co., Philadelphia

Boring, Drilling and Milling Machines, Horizontal

Barnes Co., W. F. & John, Rockford, Ill.
Beaman & Smith Co., Providence, R. I.

Boring Machines, Horizontal

Avey Drilling Machine Co., Cincinnati
Pedrick Tool & Machine Co., Philadelphia

Bronze

Bunting Brass & Bronze Co., Toledo, O.
Johnson Bronze Co., New Castle, Pa.

Bushings, Brass and Bronze

Bunting Brass & Bronze Co., Toledo, O.
Johnson Bronze Co., New Castle, Pa.

Case Hardening Compound

Buchanan Chemical Co., C. G., Cincinnati

Castellating Machines

Craftsman Tool Co., Conneaut, O.

Casters for Trucks

Hamilton Caster & Mfg. Co., Hamilton, Ohio

Centers, Index

Carter & Hakes Mch. Co., W. Winsted, Conn.
Dickow Machinery Co., Fred C., 2105 W. Lake St., Chicago

Fay & Scott, Dexter, Maine
Willard-Middletown Machine Co., Middle-town, Ohio

Chains, Power Transmission

Cullman Wheel Co., 1344 Altgeld St., Chicago
Whitney Mfg. Co., Hartford, Conn.

Chasers

National Acme Co., Cleveland

Chucking Machines

New Britain Mche. Co., New Britain, Conn.

Chucks, Centering

McCrosky Tool Corporation, Meadville, Pa.

Chucks, Collet

Ney Co., J. M., Hartford, Conn.

Chucks, Drill

Jacobs Mfg. Co., Hartford, Conn.
McCrosky Tool Corporation, Meadville, Pa.
Scully-Jones & Co., Ry. Exch. Bldg., Chicago

Chucks, Drill and Tap

McCrosky Tool Corporation, Meadville, Pa.
Peter Bros. Mfg. Co., Algonquin, Ill.
Scully-Jones & Co., Ry. Exch. Bldg., Chicago

Chucks, Keyway Cutting

Scully-Jones & Co., Ry. Exch. Bldg., Chicago

Chucks, Magnetic

Heald Machine Co., Worcester, Mass.

Chucks, Oval

Frybll Machine Co., P., 512 W. 41st., N. Y.

Chucks, Quick Change

Geometric Tool Co., New Haven, Conn.

Chucks, Wrenchless

Thomas Elevator Co., 31 S. Hoyne Ave., Chicago

Cold Saws

Hurke Machine Tool Co., Conneaut, Ohio
Peter Bros. Mfg. Co., Algonquin, Ill.

Collets

Geometric Tool Co., New Haven, Conn.

Couplings, Flexible

Cooper Flexible Transmission Co., Inc., Brooklyn

Cranes, Portable

Canedy-Otto Mfg. Co., Chicago Heights, Ill.
Canton Foundry & Mche. Co., Canton, Ohio

Crank Pin Turning Machine

Pedrick Tool & Machine Co., Philadelphia

Cutters, Adjustable

McCrosky Tool Corporation, Meadville, Pa.

Cutters, Keyseating

Scully-Jones & Co., Ry. Exch. Bldg., Chicago
Whitney Mfg. Co., Hartford, Conn.

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Cutters, Milling

Whitney Mfg., Co., Hartford, Conn.

Cutting-Off Machines

Etna Mfg. Co., Toledo, Ohio
Peter Bros. Mfg. Co., Algonquin, Ill.

Cylinder Boring Machines, Portable

Fedrick Tool & Machine Co., Philadelphia

Cylinder Grinders

Schmidt Co., B. L., Davenport, Iowa

Detectors

Bennett Metal Treating Co., Elmwood, Conn.

Die Heads, Self-Opening

National Acme Company, Cleveland

Dies, Pipe Threading

Hignall & Keeler Mch. Wks., Edwardsville, Ill.

Dies, Screw and Thread Cutting

Greenfield Tap & Die Corp., Greenfield, Mass.
National Acme Company, Cleveland

Dies, Self-Opening Adjustable

Greenfield Tap & Die Corp., Greenfield, Mass.
Rickert-Shafer Co., Erie, Pa.

Drilling Machine Heads

Nelson-Blanch Mfg. Co., Detroit, Mich.
United States Drill Head Co., Cincinnati

Drilling Machines, Bench

Avey Drilling Machine Co., Cincinnati
Barnes Co., W. F. & John, Rockford, Ill.
Burke Machine Tool Co., Connecticut, Ohio
Canedy-Otto Mfg. Co., Chicago Heights, Ill.
Reed Co., Francis, Worcester, Mass.
Taylor & Fenn Co., Hartford, Conn.

Drilling Machines, Multiple Spindle

Avey Drilling Machine Co., Cincinnati
National Acme Company, Cleveland
Reed Co., Francis, Worcester, Mass.
Taylor & Fenn Co., Hartford, Conn.

Drilling Machines, Post

Canedy-Otto Mfg. Co., Chicago Heights, Ill.
Mueller Machine Tool Co., Cincinnati

Drilling Machines, Radial

Canedy-Otto Mfg. Co., Chicago Heights, Ill.
Mueller Machine Tool Co., Cincinnati
Taylor & Fenn Co., Hartford, Conn.

Drilling Machines, Sensitive

Avey Drilling Machine Co., Cincinnati
Barnes Co., W. F. & John, Rockford, Ill.
Burke Machine Tool Co., Connecticut, Ohio
Canedy-Otto Mfg. Co., Chicago Heights, Ill.
Reed Co., Francis, Worcester, Mass.
Taylor & Fenn Co., Hartford, Conn.
U. S. Machine Tool Co., Cincinnati, O.
Wisconsin Electric Co., Racine, Wis.

Drilling, Milling and Boring Machines, Vertical

Aurora Tool Works, Aurora, Ind.

Drilling Machines, Vertical

Aurora Tool Works, Aurora, Ind.
Avey Drilling Machine Co., Cincinnati
Barnes Co., W. F. & John, Rockford, Ill.
Canedy-Otto Mfg. Co., Chicago Heights, Ill.
Taylor & Fenn Co., Hartford, Conn.

Drilling and Tapping Attachments

Aurora Tool Works, Aurora, Ind.
Barnes Co., W. F. & John, Rockford, Ill.
McCronky Tool Corporation, Mendville, Pa.
Reed Co., Francis, Worcester, Mass.

Drills, Portable Electric

Hisey-Wolf Machine Co., Cincinnati
Independent Pneumatic Tool Co., 600 W.
Jackson Blvd., Chicago
Wisconsin Electric Co., Racine, Wis.

Drill & Chuck for Square & Hex. Holes

Watts Bros. Tool Works, Turtle Creek, Pa.

Dust Handling Equipment

Klickerbocker Co., Jackson, Mich.

Emery Stands

Blount Co., J. G., Everett, Mass.

Emery Wheel Dressers and Cutters

Taylor & Fenn Co., Hartford, Conn.

Feeders, Oil and Soda Water

New Britain Machine Co., New Britain, Conn.

Forges

Canedy-Otto Mfg. Co., Chicago Heights, Ill.

Forgings, Hollow Bored

American Hollow Boring Co., Erie, Pa.

Furnaces

Bennett Metal Treating Co., Elmwood, Conn.

Furniture, Machine Shop

New Britain Machine Co., New Britain, Conn.

Grinding Machines, Belt

Peerless Surfacing Machine Co., Troy, N. Y.

Grinding Machines, Bench

Blount Co., J. G., Everett, Mass.
Finley Co., J. A., Allston, Mass.
Hisey-Wolf Machine Co., Cincinnati

Grinding Machines, Cutter, Reamer and Tool

Blount Co., J. G., Everett, Mass.
Manhattan Machine & Tool Works, Grand
Rapids, Mich.
National Acme Co., Cleveland
Thompson Grinder Co., Springfield, Ohio
Wilmarth & Norman Co., Grand Rapids, Mich.

Grinding Machines, Cylinder

Heald Machine Co., Worcester, Mass.
Schmidt Co., B. L., Davenport, Iowa
Whitney & Son, Baxter D., Winchendon, Mass.

Grinding Machines, Cylindrical

Manhattan Machine & Tool Works, Grand
Rapids, Mich.
Schmidt Co., B. L., Davenport, Iowa
Thompson Grinder Co., Springfield, Ohio

Grinding Machines, Die

Manhattan Machine & Tool Works, Grand
Rapids, Mich.
Thompson Grinder Co., Springfield, Ohio
Wilmarth & Norman Co., Grand Rapids, Mich.

Grinding Machines, Drill

Wilmarth & Norman Co., Grand Rapids, Mich.

Grinding Machines, Face

Taylor & Fenn Co., Hartford, Conn.

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Grinding Machines, Internal

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Schmidt Co., B. L., Davenport, Iowa.
Taylor & Fenn Co., Hartford, Conn.
Thompson Grinder Co., Springfield, Ohio
Whitney & Son, Haxter D., Winchendon, Mass.
Wilmarth & Morman Co., Grand Rapids, Mich.

Grinding Machines, Portable

Finley Co., J. A., Alliston, Mass.
Hisey-Wolf Machine Co., Cincinnati
Independent Pneumatic Tool Co., 660 W.
Jackson Blvd., Chicago
Wisconsin Electric Co., Racine, Wis.

Grinding Machines, Snagging

Manhattan Machine & Tool Works, Grand
Rapids, Mich.

Grinding Machines, Surface

Heald Machine Co., Worcester, Mass.
Thompson Grinder Co., Springfield, Ohio
Wilmarth & Morman Co., Grand Rapids, Mich.

Grinding Machines, Universal

Greenfield Tap & Die Corp., Greenfield, Mass.
Thompson Grinder Co., Springfield, Ohio
Wilmarth & Morman Co., Grand Rapids, Mich.

Hack Saw Machines

Armstrong-Blum Mfg. Co., 341 N. Francisco
Av., Chicago
Racine Tool & Machine Co., Racine, Wis.

Hammers, Air

Independent Pneumatic Tool Co., 660 W.
Jackson Blvd., Chicago

Hammers, Belt & Motor Driven

Beaudry & Co., Boston
United Hammer Co., Boston

Hammers, Power

Beaudry & Co., Boston
Quickwork Co., St. Marys, Ohio
United Hammer Co., Boston

Hammers, Riveting

Independent Pneumatic Tool Co., 600 W.
Jackson Blvd., Chicago
Quickwork Co., St. Marys, Ohio

Heads, Dividing

Dickow Machinery Co., Fred C., 2105 W.
Lake St., Chicago
Willard-Middletown Machine Co., Middle-
town, Ohio

Hoists, Electric

Thomas Elevator Co., 31 S. Hoyne Ave.,
Chicago

Hoists, Portable

Canton Foundry & Machine Co., Canton, Ohio

Jigs, Fixtures, Tools

Craftsman Tool Co., Conneaut, O.

Joints, Universal

Cooper Flexible Transmission Co., Inc.,
Brooklyn

Keyseating Machines

Bucher-Smith Co., East Liverpool, Ohio
Chattanooga Mch. Co., Chattanooga, Tenn.
National Machine Tool Co., Cincinnati
Whitney Mfg. Co., Hartford, Conn.

Lathe Accessories and Attachments

Fay & Scott, Dexter, Maine
McCroskey Tool Corporation, Meadville, Pa.

Lathes, Automatic

National Acme Company, Cleveland

Lathes, Bench

Blount Co., J. G., Everett, Mass.

Lathes, Engine

Barnes Co., W. F. & John, Rockford, Ill.
Candey-Otto Mfg. Co., Chicago Heights, Ill.
Fay & Scott, Dexter, Maine
Mueller Machine Tool Co., Cincinnati
Stephoe Co., John, Cincinnati, O.

Lathes, Foot Power

Barnes Co., W. F. & John, Rockford, Ill.

Lathes, Metal Spinning

Prybil Machine Co., P., 512 W. 41st, N. Y.

Lathes, Speed and Hand

Blount Co., J. G., Everett, Mass.

Mandrels, Expanding

Nicholson & Co., W. H., Wilkes-Barre, Pa.

Mandrels, Solid

Nicholson & Co., W. H., Wilkes-Barre, Pa.

Metal Cutting Machines, Sheet

Quickwork Co., St. Marys, Ohio

Milling Attachments

Burke Machine Tool Co., Conneaut, Ohio
Willard-Middletown Machine Co., Middle-
town, Ohio

Milling Machines, Bench

Burke Machine Tool Co., Conneaut, Ohio
Carter & Hakes Mch. Co., W. Winsted, Conn.

Milling Machines, Hand

Burke Machine Tool Co., Conneaut, Ohio
Carter & Hakes Mch. Co., W. Winsted, Conn.
Stephoe Co., John, Cincinnati, O.
U. S. Machine Tool Co., Cincinnati, O.
Whitney Mfg. Co., Hartford, Conn.

Milling Machines, Horizontal

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Beaman & Smith Co., Providence, R. I.
Burke Machine Tool Co., Conneaut, Ohio
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Milling Machines, Portable

Pedrick Tool & Machine Co., Philadelphia

Milling Machines, Universal

Stephoe Co., John, Cincinnati, O.

Milling Machines, Vertical

Beaman & Smith Co., Providence, R. I.
Burke Machine Tool Co., Conneaut, Ohio
Taylor & Fenn Co., Hartford, Conn.

Motors, Electric

Reliance Electric & Eng. Co., Cleveland
Wisconsin Electric Co., Racine, Wis.

Oil Cups

Gits Bros. Mfg. Co., 1940 S. Kilbourn Av.,
Chicago
Tucker, W. C. & F. C., Hartford, Conn.

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Tucker, W. C. & F. C., Hartford, Conn.
- Pattern Shop Machinery**
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Towsley Mfg. Co., John T., Cincinnati
- Pipe Bending Machines**
Pedrick Tool & Machine Co., Philadelphia
- Pipe Cutting and Threading Machines**
Bignall & Keeler Mch. Wks., Edwardsville, Ill.
- Piston and Piston Ring Machines**
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- Planers, Valve Seat, Portable**
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Hisey-Wolf Machine Co., Cincinnati
Independent Pneumatic Tool Co., 600 W. Jackson Blvd., Chicago
New Britain Machine Co., New Britain, Conn.
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- Presses, Arbor**
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Nicholson & Co., W. H., Wilkes-Barre, Pa.
- Presses, Branching**
Atlas Press Co., Kalamazoo, Mich.
Lourie Mfg. Co., Springfield, Ill.
- Presses, Foot**
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Rockford Iron Works, Rockford, Ill.
Taylor & Fenn Co., Hartford, Conn.
- Presses, Power**
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Fryott Foundry Co., 328 N. Sangamon St., Chicago
- Punch Press Feeds**
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- Punch, Shear and Bender, Hand**
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- Punches, Hand**
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Lewthwaite Mch. Co., T. H., 417 E. 31st St., New York
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Hendley & Whittemore Co., Beloit, Wis.
- Punches and Dies**
Hendley & Whittemore Co., Beloit, Wis.
Lewthwaite Mch. Co., T. H., 417 E. 31st., N. Y.
Rockford Iron Works, Rockford, Ill.
- Quenching Baths**
Bennett Metal Treating Co., Elmwood, Conn.
- Racks, Bar Stock**
New Britain Machine Co., New Britain, Conn.
- Reamers, Adjustable**
Greenfield Tap & Die Corp., Greenfield, Mass.
McCroskey Tool Corporation, Meadville, Pa.
- Reamers, Cylinder**
McCroskey Tool Corporation, Meadville, Pa.
- Reamers, Solid**
McCroskey Tool Corporation, Meadville, Pa.
- Reels, Extension**
Cincinnati Specialty Mfg. Co., Cincinnati, O.
- Riveting Machines**
Grant Mfg. & Mch. Co., Bridgeport, Conn.
- Rod Cutters**
Armstrong-Blum Mfg. Co., 341 N. Francisco Ave., Chicago
Hendley & Whittemore Co., Beloit, Wis.
Lewthwaite Mch. Co., T. H., 417 E. 31st., N. Y.
Tucker, W. C. & F. C., Hartford, Conn.
- Scraping Machines, Hand & Pneumatic**
Anderson Brothers Mfg. Co., Rockford, Ill.
- Screw Driving Machines, Automatic**
Reynolds Machine Co., Mansfield, Ohio
- Screw Driving Machines, Portable Electric**
Hisey-Wolf Machine Co., Cincinnati
- Screw Machines, Automatic**
National Acme Company, Cleveland
New Britain Mch. Co., New Britain, Conn.
- Screw Machines, Auxiliary**
National Acme Company, Cleveland
- Screws, Cap and Set**
National Acme Company, Cleveland
- Second-Hand Machinery Dealers**
Allen Mch. Co., E. C., 661 W. Monroe St., Chicago
Austin Mch. Corp., 609 Railway Exchange Bldg., Chicago
Badger-Packard Mch. Co., Milwaukee, Wis.
Bath & Co., Cyril J., Cleveland, O.
Beal & Co., Joseph, Boston, Mass.
Higgs-Watterson Co., Cleveland
Botwinik Brothers, New Haven, Conn.
Brown Machinery Co., St. Louis, Mo.
Brownell Machinery Co., Providence, R. I.
Easley Machinery Co., E. L., 655 Washington Blvd., Chicago
Graves Mch. Exchange, Jersey City, N. J.
Harris Bros. Co., W. 35th & Iron, Chicago
Hill, Clarke & Co., 649 W. Washington Blvd., Chicago
Johnson & Sons Machinery Co., Wm. C., St. Louis, Mo.

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 McCabe & Sheeran Machinery Corporation,
 50 Church St., New York
 McDonald Machinery Co., St. Louis
 McMullen Mchy. Co., Grand Rapids, Mich.
 Marr Machinery Corporation, Pittsburgh, Pa.
 Molitor Mchy. Co., Chas., 118 S. Clinton,
 Chicago
 New York Mchy. Exchange, 50 Church St.,
 New York
 Niles-Bement-Pond Co., 111 Broadway, N. Y.
 Norton Broadway Mchy. Co., Cincinnati, O.
 O'Brien Machinery Co., Philadelphia
 Osborne & Sexton Mchy. Co., Columbus, O.
 Fryhill Machine Co., P., 512 W. 41st, N. Y.
 Randle Machinery Co., Cincinnati
 Reeve-Fritte Co., 37 S. Desplaines, Chicago
 Reliance Mchy. Sales Co., Pittsburgh, Pa.
 Riverside Machinery Depot, Detroit, Mich.
 Rowlingson, D. E., Utica, N. Y.
 Russell Machine Co., Pittsburgh, Pa.
 Scott-Bansbach Mchy. Co., 120 S. Clinton
 St., Chicago
 Simmons Machine Co., Albany, N. Y.
 Stoehr Mchy. Co., A. M., 844 N. Wells St.,
 Chicago
 Strong, Carlisle & Hammond Co., Cleveland
 Toomey, Inc., Frank, Philadelphia
 Tubor, Velick & Co., Inc., Lake & Desplaines
 Sts., Chicago
 Wayne Mchy. Co., Fort Wayne, Ind.
 Winterer, Herman L., Philadelphia
 White Mchy. Co., A. D., 108 N. Jefferson
 St., Chicago

Shafts, Flexible

Haskins Co., R. G., 29 S. Desplaines St.,
 Chicago

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American Hollow Boring Co., Erie, Pa.

Shaping Machines

Columbia Machine Tool Co., Hamilton, Ohio
 Hollingsworth Mche. Tool Co., Covington, Ky.
 Ohio Machine Tool Co., Kenton, Ohio
 Osborne & Sexton Mchy. Co., Columbus, O.
 Rhodes Mfg. Co., Hartford, Conn.
 Smith & Mills Co., Cincinnati
 Steptoe Co., John, Cincinnati, O.
 Universal Machine & Tool Co., Canton, O.

Shears, Hand

Armstrong-Blum Mfg. Co., 341 N. Francisco
 Av., Chicago
 Hendley & Whittemore Co., Beloit, Wis.
 Kidder Mfg. Co., J. F., Burlington, Vermont
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 Whitney Metal Tool Co., Rockford, Ill.

Shears, Power

Hendley & Whittemore Co., Beloit, Wis.
 Quickwork Co., St. Marys, Ohio

Sheet Metal Working Machinery

Quickwork Co., St. Marys, Ohio

Slotting Machines

Rhodes Mfg. Co., Hartford, Conn.

Sprockets

Culman Wheel Co., 1344 Altgeld St., Chicago

Straightening Machines

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Stud Setters, Self-Opening

Geometric Tool Co., New Haven, Conn.

Swaging Machines

Etna Mfg. Co., Toledo, Ohio

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Walton Co., Hartford, Conn.

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Avey Drilling Machine Co., Cincinnati
 Beaman & Smith Co., Providence, R. I.
 Burke Machine Tool Co., Conneaut, Ohio
 Geometric Tool Co., New Haven, Conn.
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 McCroskey Tool Corporation, Meadville, Pa.
 Rickert-Shafer Co., Erie, Pa.
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Thread Dials

Colven, J. M., Yonkers, N. Y.

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National Acme Company, Cleveland

Threading Tools

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 Av., Chicago
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Tool Holders

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Tools, Boring

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 Av., Chicago

Tools, Box

Biggs, P. H., Cleveland, O.

Tools, Lathe and Planer

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Armstrong Bros. Tool Co., 308 N. Francisco
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Turntables

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Turret Tool Posts

Fay & Scott, Dexter, Maine

Valve Grinders

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 Jackson Blvd., Chicago

Valves

Powell Co., Wm., Cincinnati

Vises, Drilling Machine

Armstrong-Blum Mfg. Co., 341 N. Francisco
 Av., Chicago

Armstrong Bros. Tool Co., 308 N. Francisco
 Av., Chicago

Carter & Hakes Mche. Co., W. Winsted, Conn.

Thomas Elevator Co., 31 S. Hoyne Av.,
 Chicago

Vises, Machinists'

New Britain Machine Co., New Britain, Conn.

Vises, Milling Machine

Carter & Hakes Mche. Co., W. Winsted, Conn.

Vises, Shaper

Columbia Machine Tool Co., Hamilton, Ohio

Wood Working Machinery

Hendley & Whittemore Co., Beloit, Wis.

New Britain Machine Co., New Britain, Conn.

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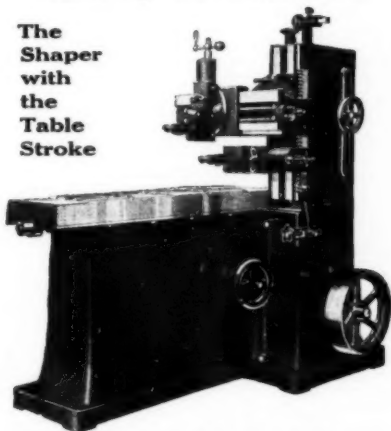
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A 24" Universal Shaper

Built by Tool Makers

**The
Shaper
with
the
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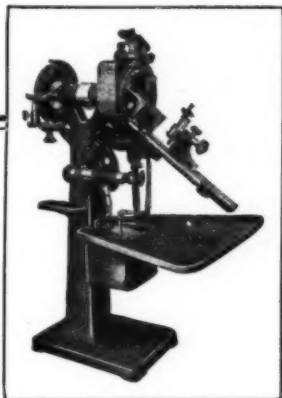
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Universal Machine & Tool Co.
Canton, Ohio

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**The Improved NEW YANKEE
Twist Drill Grinder quickly
grinds drills long or short,
straight, taper or collared shank,
two or three lipped drills, without
the use of special attachments.**

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